# THE MODERN HOSPITAL

*A Monthly Journal Devoted to the Building, Equipment, and Administration of Hospitals, Sanatoriums, and Allied Institutions, and to Their Medical, Surgical and Nursing Services*

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## MAKING THE HOSPITAL A PLACE OF BEAUTY FOR THE PATIENT*

### Stimulating Patients' Happiness One of Chief Requisites of Hospital Architecture and Equipment—Suburban Site Desirable—Best Possible Ventilation a Necessity—Simple and Dainty Effects To Be Aimed at in Furnishing Patients' Rooms


BY WILLIAM ORR LUDLOW, OF LUDLOW & PEABODY, ARCHITECTS, NEW YORK CITY


HOW much do the aspects of our surroundings affect health? Not long ago I visited the Mammoth Cave in Kentucky and there was pointed out to me in one of those subterranean avenues two little huts built some sixty years ago on the theory that tuberculous patients living in that never-varying temperature of 58 degrees would be greatly benefited. I need hardly tell you the result; three died in the cave inside of three months, and the others shortly after leaving the depressing place.

Whatever the effect of the even, cool temperature, we need no argument in these more enlightened days to persuade us that the gloom of a cave existence, the lack of revitalizing sunlight, the absence of color, the dread aspect of rugged, black, overhanging rock, and the grewsome reverberation of voice and footsteps were in themselves enough to depress the mind to such an extent that eventually the body could not endure. The fact that the body suffers with the mind and rejoices with the mind —especially when the body and mind are both in the sensitive state induced by illness—is too well known to need repetition. I conceive it, then, one of the functions of the hospital building and its equipment and furnishings is to minister to recovery by providing those surroundings best adapted to mental happiness, as well as by providing the hygienic condition and service which have for so long been our first care. In this brief paper I shall endeavor to make a few suggestions relating to the patient's comfort and applicable to existing buildings, as well as to new construction.

Fig. 1. The soft lights and stately pillars give an air of quiet dignity and elegance to this attractive foyer.

But first let me say, relative to new buildings, that I believe we should build our city hospitals more generally in the immediate suburbs rather than in the thickly-populated districts. True, a

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certain number of hospitals, especially for emergency cases and for ready access for the medical profession, must be near centers of population; but these in number should be the minimum. What is less conducive to the comfort of the patient than the outlook on narrow city streets and little back yards, the lack of breeze on stifling summer nights, the hundred street noises never ceasing by night or day, the air laden with city dust, and the lack of sunlight? Ready accessibility by automobile puts the hospital building located in the suburbs in these days in quite a different light, and I should advise those who have building in contemplation to consider most seriously suburban or rural location.

The exterior aspect of the building is a consideration of some weight. The antipathy of the average person, now fortunately being to an extent modified, is due no doubt partly to the uncompromisingly stern institutional look of so many of our hospital buildings, particularly those of the earlier types. The responsibility for this rests squarely on the shoulders of the architect, for funds for elaboration and expense are in no wise necessary to an air of comfort and unconventionality.

Of those trustees and managers whose charge is an old building I would ask: What have you done with perhaps even your few square feet of surrounding ground? I have seen even factories made to extend a welcome by a judicious planting of cedars, shrubbery, vines, and grass.

Now, as we enter the building, what impression is made on the mind? Does the stern and sterile aspect of the lobby and reception room remind us that this is an institution, and does the apprehensive eye of the prospective patient seem to read from his surroundings, "Abandon hope, all ye who enter here"? We are not really afraid of germs in the lobby and reception room; then why not let warm color, rugs, and dainty hangings say, "There are kindly people here just as in your own home, who will minister to your comfort."

To you of the old building again, have you looked over your entrance carefully to see whether its air of friendliness would not be greater if you had a few wicker chairs, a warm floor covering, light window draperies, and a little bright wall stencilling?

But the greater part of the patient's time must be passed looking at the four walls and ceiling of a ward or private room. Except where greatest economy demands, or for certain types of patients, the public ward will some day give place largely to single rooms, and thus the greatest obstacle to satisfactory surroundings will be overcome. But even in the ward many of the following considerations are applicable.

For the comfort of the patient the best possible ventilation is, of course, a necessity; and personally I believe that, for single bedrooms and even for most wards, Nature's good fresh air taken direct from out-of-doors provides the best, even though at times quite unequal in quantity and quality. Artificial ventilation by blower and exhaust fan is essential to operating and anesthetizing rooms, kitchens, and often laboratories, toilets and utility rooms, but I believe the considerable expense involved and the uncertain regulation by attendants make it undesirable for private rooms and wards. Such rooms should be equipped with solid wood transom sash over windows and doors and inclined adjustable deflectors for the lower window sash, but it should always be remembered, as conclusive experiments have shown, that the quality of air is less important than the flow of air which removes constantly from the body the stagnant air envelope which prevents the proper breathing of the pores of the skin.

Comfort also depends to a large extent on the lighting, both natural and artificial. Every patient's room should have direct sunlight during some part of the day. The good cheer of sunlight as it falls on floor or walls is of great therapeutic value, quite as much psychologically as physically. Shades of which the position is adjustable and which pull both up and down permit of covering only the necessary portion of the window opening and make possible the inflow of air without the troublesome flapping.

The worst type of artificial lighting in the patient's room is the ceiling fixture, either direct, indirect, or semi-indirect; for it puts the light squarely in the patient's eyes. The semi-indirect is the least objectionable, as it gives greater diffusion of light, but even so bright a ceiling is trying to the eyes of one lying in bed. Moreover, a room never looks so cheerless as when illuminated by light diffused from a white ceiling, for practically all shadows are eliminated, and shadows are not only what we judge size, shape, and position by, but are so essential for the satisfaction of the eye that architecture as a fine art is, to an extent, a study of high light and shadow.

The most satisfactory patient's light is set behind the bed on the wall and so designed that the direct rays from the lamp are thrown on the bed where most needed, while the opalescent canopy over the lamp throws a soft diffused light through the room for general illumination. The lamp should be of a type that provides two or three different intensities by the pulling of a cord.

To you who have the old building, let me suggest that a most satisfactory light is the portable, which is attachable to the head of the bed, and which may be either turned upward toward the ceiling for general illumination or downward onto the patient's bed, at the same time using the adjustable intensity lamp, the lowest intensity of which gives just a faint glow in the room when the fixture is turned toward the ceiling, thus making a most desirable night-light. In the wards, a reflector light sunk in the floor, and covered with heavy ground glass, gives the ideal night light.

In furnishing the patient's room, I would suggest the sweet, simple, dainty effects that the colonial bedroom provides, with furniture of simple lines, without mouldings but with color. The effect to be desired, of course, is "homelikeness." Pictures which will do more than almost any other one thing to lead away the tired mind, and which give the finishing touch to "homelikeness" should always be part of the furnishing. Their dust-collecting propensities are small when one considers the relatively large surfaces of the furniture, window ledges, sash frames, and transom bars.

Color has a much greater therapeutic value than commonly supposed. High keys and violent contrasts have by experiment been shown to excite the sensory nerves to a degree causing actual distress. Note how sparingly Nature uses red and orange; even the glories of the sunset are allowed to last but a few moments; and the red flower in the fields is exceptional. Were it not that as much light as possible must be conserved in our rooms, green—Nature's predominating, most endurable and most restful color—would be ideal. But, as light is admitted through a comparatively small opening, it is necessary to preserve its quantity by reflection from walls and ceilings of light tones. White is too extreme. The sunlight tones of cream, buff, and yellow should always be used in rooms of north exposure, and French greys, or light Nile green, where direct sunlight is more abundant. Blue is a depressing color when in large surfaces; and pink, which verges toward the red tones, should be used sparingly.

The high tones can and should be used in wall and furniture stencil decorations, furniture coverings and window curtains, just as Nature gives cheer to man by fields dotted with flowers—yellow, blue, and occasionally red.

Food served on china simply decorated brings a joy to jaded appetites and weary minds, just as the flowers of the field bring refreshment to the traveler.

There are two other matters related to the comfort of the patient which I will briefly mention. With the first of these—odors—you will perhaps feel the building itself has little to do; that is partly true, but odors must be generated in a hospital and the problem is simply one of removal.

Fig. 2. Not only contented, but happy, must be the occupant of this room, which provides so well for his physical comfort and at the same time recognizes his appreciation of the æsthetic.

The architect must do his part by providing adequate means of ventilating everything; and the attendants and nurse must bear the responsibility of using them to capacity, for of all of the elements that go to make antipathy for the hospital, none is more compelling than the "hospital odor."

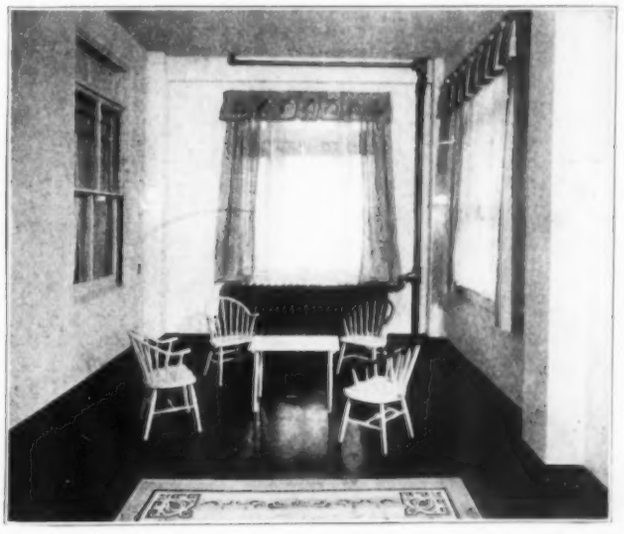


Fig. 3. An artistic corner devoted to the little ones. The tulip-bordered hangings and snow-white curtains reflect the sunshine in a manner to make their tiny hearts rejoice.

There is joint responsibility again in the matter of noises. The building should make quiet possible by the use of automatic door closers and arm-hooks instead of the noisy latch; elevators should operate by direct current motors where possible; door hangers should be of a noiseless

type; and the cars should always open into a vestibule and not into a hallway. Linoleum should be used in hallways and in the aisles of the wards.

In concluding this paper, let me say that I have ventured these few suggestions relative to the comfort of the patient not merely that his enforced sojourn may be a trifle less irksome, nor yet with the stronger motive of healing of the body made surer and quicker by comfort and peace to the mind; but far more have I had in thought the widening of the scope of the hospital to possibilities perhaps never dreamed of through the overcoming of that great deterrent to entering hospital care—the time-honored, let me say traditional, dread of that grim and austere place where sickness, misery, and death seem to so many to reign supreme.

The hospital is the natural and proper place for thousands of cases that now are treated in inadequate home environments; and, once can a feeling toward the hospital as a place of rest, comfort, kindly attention, and care take the place of antipathy, the hospital—with the church and the school—the greatest of all institutions, will have its rightful place and scope. Then, like the Red Cross nurse to our soldiers on the battlefield, will it be thought of only gratefully and lovingly as the Greatest Mother in the World.

## A HALF CENTURY'S STEADY GROWTH IN USEFULNESS

### From Small Beginning Boston Children's Hospital Has Attained World-Wide Renown—Convalescent Home in Country Cares For Little Ones of Poorer Families Until Entirely Cured

By Our Eastern Correspondent

THE Children's Hospital of Boston was incorporated March 22, 1869, and, having secured a house at 9 Rutland Street, started in with accommodations for twenty children and necessary help. The first patient was received July 20, and during that year thirty children were cared for. The following summer the patients were moved into a new and larger building which had been leased on the corner of Rutland and Washington streets. That year the total number of children received was sixty-nine, and in 1871, ninety-seven. In 1872, the Sisters of St. Margaret took charge of the hospital and, from then up to 1917, when they resigned, spent themselves lovingly and generously in its service.

Fig. 1. Just a modest four-story structure—this was the beginning in 1869.

The years following 1871 saw a steady growth in the usefulness of the institution, and in 1874 the hospital was obliged to turn away children because of the absolute lack of facilities. In the summer of that year a small beginning in the way of a convalescent home was made, and accommodations for six children and a nurse were obtained in Weston. About this same time it was decided to organize an outpatient department in order that the large number of children who did not need ward care, or for whom prolonged supervision was necessary, might have the advantage of skilled treatment and of the hospital resources. A house at 1525 Washington Street was taken over, and the clinics were held three days a week.

In 1873 a group of women who had been intensely interested in the hospital formed a ladies' aid association, which most successfully cooperated with the managers in equipping the hospital with necessities and comforts. In 1875 these ladies opened a convalescent home in Wellesley where twelve children at a time could spend long

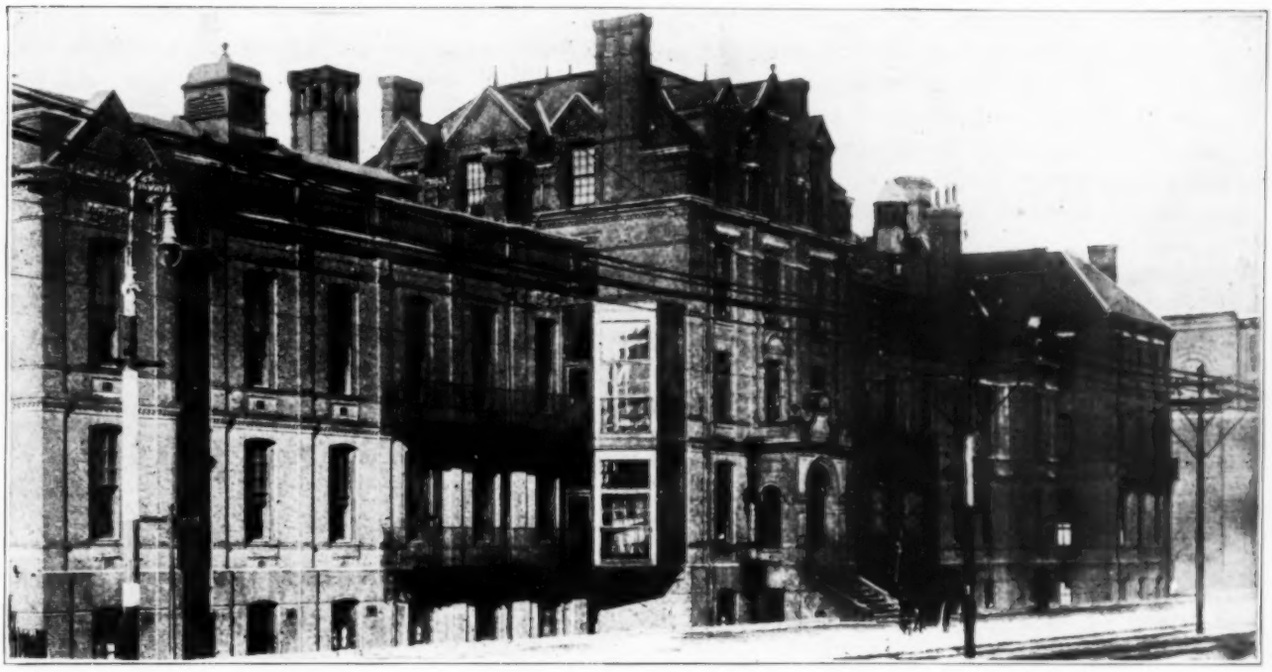


Fig. 2. Twelve years have meant much in the way of growth. As the hospital appeared in 1881.

happy hours in the sunshine and grow strong and joyous in the country. The majority of the little ones came from homes where sun, fresh air, and nourishing food were unknown, and, previous to the opening of the home, the hospital had been seriously handicapped by having to return the children to such unfortunate conditions before they were entirely cured. During the first few years the home was open from May to October, but later it was used the year round. In 1879 it was enlarged to accommodate the steadily increasing number of needy cases.

From 1876 to 1880 the hospital continued to grow and to become known throughout the community as the hope of sick and suffering children. Up to this time no other institution had reached out for these poor little ones and impressed upon the public at large that prompt and intelligent treatment of a child might prevent the possibility of the deformity from a tuberculous joint, or that proper care of a child with an acute heart disease might limit the danger of its becoming chronic and resulting in a life of invalidism.

In 1880 the out-patient department in its first annual report stated that it had taken in 251 patients; in 1881 that number had increased to 336. At this time a subscription of $95,000 was received and land was purchased on Huntington Avenue for $30,000. The corner stone was laid in June of that year. On the twentieth of Decem-

Fig. 3. Modern in every respect, the Children's Hospital as it stands to-day is one of Boston's most imposing structures.

ber, 1882, the new hospital was opened for the inspection of the public, and on the day after Christmas it was dedicated. The capacity of the wards was sixty patients, with three rooms set aside for private cases. The wards were large and pleasant, and everything was planned for the most efficient medical and surgical care of children.

In order to control the manufacture of surgical apparatus for deformed children and to supply the poorer people with such apparatus at low cost, a shop was built and equipped adjoining the wards.

In 1864 owing to the growth of the hospital, a wing was added for a new out-patient department. The third floor was divided into a series of small wards for medical cases with single rooms, to be used in the event that either the medical or surgical patients should require such quiet. The years following the opening of the new hospital were years of remarkable achievement and success. The institution became known not only throughout the country, but abroad as well, for the original work done by its medical and surgical staff, and for the excellent results obtained by its improved methods of treatment. Patients were received from all over the United States, Canada, and England. A department for diseases of the nose and throat was opened in 1889 and fulfilled a much needed want in the community.

In May, 1891, a training school for nurses was established, and at the end of the first year eight nurses were graduated.

The hospital had taken 758 patients into its wards during 1896, and in the out-patient department 2,755 new cases had been received. In 1898, 910 cases were treated inside the hospital, and 3,145 new cases were cared for in the out-patient department. The convalescent home was opened during the entire year, and 355 children profited by its care. During these years, a visiting nurse had followed up cases from the out-patient department where special teaching of the mother and supervision were needed. The training school had given courses at the Infants' Hospital at St. Margaret's, and in 1898 fourteen women were graduated. A house on Gainsboro street was leased for a nurses' home, with accommodations for eight nurses and one sister.

At the end of 1900 the hospital reported 1,394 children treated in the wards, 1,712 new cases received in the out-patient department, and 440 children cared for in the convalescent home. The constant pressure of an increasing number of children showed the absolute inadequacy of the hospital building and the necessity for a larger and more modern building. In 1904, however, the convalescent home was burned, and it was thought best to defer plans for a new hospital until a new home was put up. This was accomplished in 1905, when a larger and very beautifully appointed home was built and dedicated. As it stands, one hundred children are easily cared for under ideal conditions.

In 1911 the fund for the new hospital seemed sufficient to warrant starting the work, and plans

Fig. 4. When the circus comes to town, the little sufferers forget their troubles.

were begun. The spring of 1914 saw the buildings completed. In June the children in the hospital on Huntington avenue were moved into the new hospital, and new patients were received. The general wards of the new building have accommodations for 132 children. Although the private ward can take in eighteen children and some of the rooms have accommodations for a mother or a special nurse, the demand for more rooms has been urgent and pressing. A private ward with twice the capacity could easily be filled the year round. This is proved over and over again by the fact that, although the private ward leaves a great deal to be desired in the way of situation and facilities, the pressure for accommodations there remains constant.

The expansion of the hospital was immediate. During the months from September to December the number of patients in the wards increased 44 per cent and the visits made to the out-patient department, 36 per cent. In 1915, a comparison with the figures of 1913 showed an increase of 74

per cent in the number of patients in the wards, 42 per cent in the number of operations, and 74 per cent in the number of out-patient visits. The new hospital wards make it possible to care for the children under ideal conditions, with plenty of fresh air and sunshine, and with the minimizing of the occurrence of contagion by the grouping of patients in small units. The out-patient department has plenty of room for its very large clinics, and its admirable equipment of operating rooms, plaster rooms, gymnasium, and laboratory guarantees a satisfactory handling of such clinics.

The school of nursing has increased in the number of pupil nurses to meet the demands made on it from the various hospital departments and affiliations. Its high standing enables it to meet the requirements of the Board of Regents in the State of New York, as well as those of the state and national associations of nurses.

Following the epidemic of infantile paralysis in 1916, the hospital was requested by the Commission on After-Care of Infantile Paralysis in New York City to loan its instructor in physical therapeutics to New York to instruct nurses in muscle reeducation; and, during three months of her absence, New York nurses were sent to Boston to be instructed, partly at the Children's Hospital. The commission appointed in October by Harvard University to study infantile paralysis was requested by the State Department of Health of Massachusetts to conduct the after-care of infantile paralysis in Boston, and this commission in turn requested the infantile paralysis clinic at the Children's Hospital to serve as central clinic. This has extended the influence of the hospital throughout the community, and has founded an important relation with the State Department of Health and with Harvard University, a relationship which has been of great gain to the Children's Hospital.

## A TUBERCULOSIS HOSPITAL CONSTRUCTED AT LOW COST*

### Compactness One of Chief Characteristics of Rhode Island Institution—Built-In Screens Unusual Feature—Window Sashes Enable Wards to Be Converted Into Covered Porches

By HARRY LEE BARNES, M.D., Superintendent State Tuberculosis Hospital, Wallum Lake, R. I.

IN 1911 the special commission appointed to investigate the need of a hospital for advanced cases of tuberculosis reported favorably, and in 1915 the General Assembly authorized the expenditure of the $150,000 bond issue to build and equip the new hospital on the grounds of the state sanatorium. The board of control and supply, which was responsible for the work, authorized the preparation of plans and specifications by a committee consisting of Mr. Walter F. Fontaine, architect, Dr. Dennett L. Richardson, and myself.

It was decided to locate the new hospital north of the employees' building. An open space of 200 feet was allowed in order to obtain a better view and to prevent employees from being disturbed by the coughing of patients. To safeguard the lives of bedridden patients and to secure a permanent investment, a fireproof building was the only one considered. The building has practically no wood or other combustible material except doors, window-frames, and sashes. The door frames in the three upper floors are of steel. The doors and windows of the stairway and elevator shaft contain wire glass. To eliminate the connecting corridors which waste so much space and money in the construction and upkeep of institutions, the building was built compactly four stories high instead of being constructed as a lower building covering more area. As considerable space was needed for room for employees and offices, the basement floor, which has as much light and air as the first story of any ordinary building, was given over for this purpose, thus eliminating the cellar which is largely waste space in many hospitals.

TABLE I. COST OF CONSTRUCTION AND EQUIPMENT OF THE NEW HOSPITAL

*Construction*

| | |
|---|---|
| General contract | $ 85,227.50 |
| Plumbing, drains and fire service | 12,679.51 |
| Heating | 11,720.72 |
| Architect's services | 5,861.37 |
| Electric wiring | 4,903.27 |
| Refrigerators and wiring | 3,670.00 |
| Engineer's services | 1,130.38 |
| Water piping system | 872.00 |
| Waterproofing tunnel | 750.00 |
| Iron meat racks | 395.74 |
| Bronze tablet | 139.37 |
| Extra painting | 80.00 |
| Telephones | 77.55 |
| Claim on Plumber | 73.16 |
| Patrol clock | 59 00 |
| Mazda lamps | 51.00 |
| Estimating plans | 25.00 |
| Hospital furnishings | 11 36 |
| Grading work | 1,166 53 |
| Traveling expenses | 200.22 |
| Steam supplies | 98.91 |
| Advertising | 93.11 |
| Extra hardware | 89.30 |
| Lumber | 64.75 |
| Drain work—subcellar | 30.00 |
| Staking ward | 20.44 |
| Plumber's material | 13.26 |
| Freight | 9.68 |
| Miscellaneous | 360.85 |
| Total | $129,874.03 |

*A criticism of the plans of this sanatorium by a leading hospital consultant will be found on page 424 of this issue. Dr. Barnes replied to this criticism with the article appearing on page 424.

The hospital has a southerly exposure and is well protected by pine groves. The eighteen-bed wards in each wing of the three upper floors are completely flooded by sunshine (whenever there is sunshine) during the cold winter months. As

Fig. 1. A southern exposure permits entrance of sunlight and scent of pine.

spring advances the sun, being more vertical, enters the wards less and less until by May it does not touch the beds, and by July it enters only about two feet on the south edge. The Whitney sashes on the whole south side allow these wards to be converted into covered porches at will. This is of great importance even for hopeless cases, as these patients frequently do not realize that their condition is hopeless and are not contented unless they have the open-air treatment. "Taking the cure" is agreeable to all from April to November, and during the remainder of the year we allow the patients of each ward to decide by majority vote how much open-air treatment they will take. Many of the wards continue the treatment through the entire winter months.

Some authorities prefer uncovered porches for sleeping out in pleasant weather, but such porches cannot readily be obtained in buildings of more than one story, and porches built at the side of ward buildings keep out sunshine and necessitate wheeling beds in and out during unpleasant weather, usually defacing the door casings and beds and ruffling the temper of both attendants and patients. Uncovered porches offer no extra advantages except the psychic one of inspecting the stars before falling asleep. Our patients, many of whom have previously enjoyed sleeping on uncovered porches, have been satisfied with these porch wards.

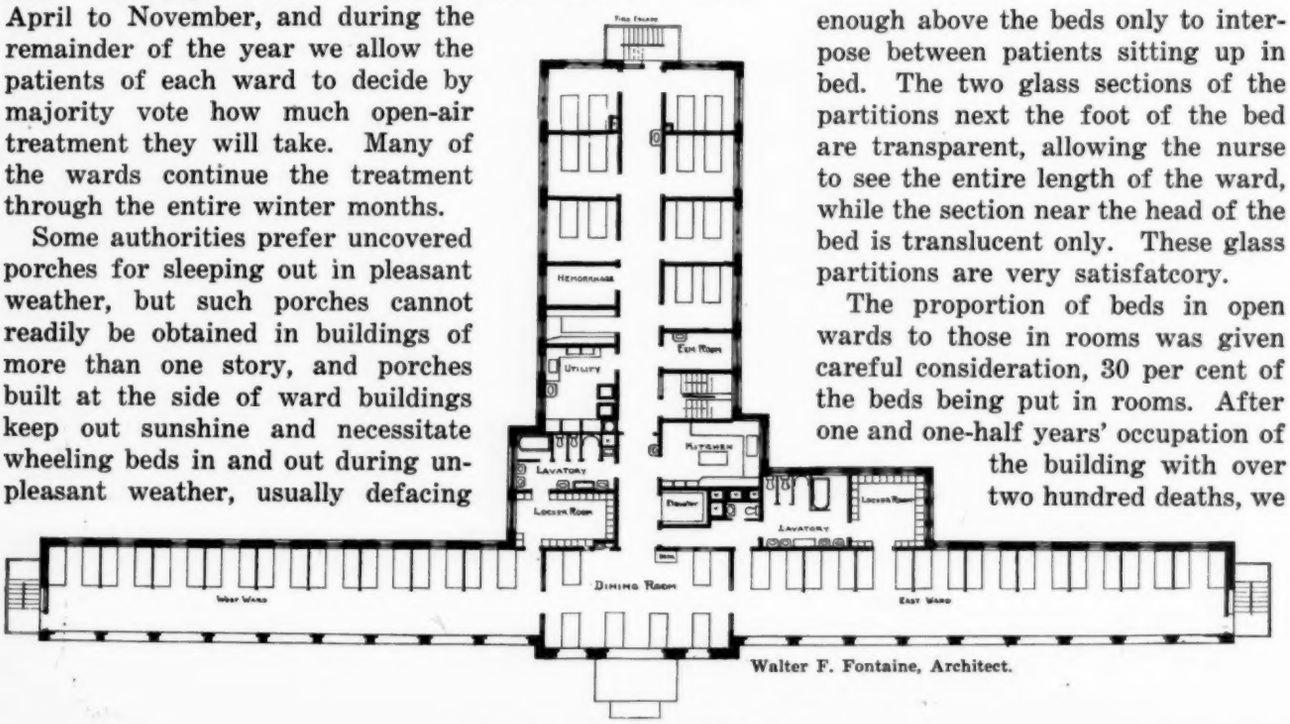
The three upper floors are exactly alike, each having fifty-one beds divided into two eighteen-bed wards, seven double rooms, and one single bedroom. Each floor can be administered as a ward unit, as it has a dining room, diet kitchen, utility, linen, and examination rooms; or, if preferred, each floor can be administered as two wards for opposite sexes, as there are two locker and bathroom units. We have not found the eighteen-bed ward too large, as particularly noisy coughers can be moved into the rooms in the rear extension. The wards are divided into nine two-bed cubicles by glass partitions which are high enough off the floor to allow complete under-bed ventilation of the ward and high enough above the beds only to interpose between patients sitting up in bed. The two glass sections of the partitions next the foot of the bed are transparent, allowing the nurse to see the entire length of the ward, while the section near the head of the bed is translucent only. These glass partitions are very satisfatcory.

The proportion of beds in open wards to those in rooms was given careful consideration, 30 per cent of the beds being put in rooms. After one and one-half years' occupation of the building with over two hundred deaths, we

TABLE II. TOTAL CONSTRUCTION

*Equipment*

| | |
|---|---|
| Lockers, towel racks, and screens | $ 2,643.00 |
| Elevator | 2,635.00 |
| Furnishings, steam tables, food carts, etc. | 1,609.00 |
| Electric fixtures | 1,196.00 |
| Dental outfit | 435.00 |
| Electric wiring and fixtures | 256.00 |
| Architect's services | 204.78 |
| Engineer's services | 155.67 |
| Window shades | 83.31 |
| Hospital supplies | 1,933.78 |
| Stoves | 63.00 |
| Beds and Bedding | 6,061.70 |
| Furniture | 2,457.60 |
| Hospital furnishings | 291.76 |
| Freight | 85.00 |
| Advertising | 11.37 |
| Labor | 4.00 |
| Total | $ 20,125.97 |
| **Total cost of construction and equipment (Tables I and II)** | **$150,000.00** |




Walter F. Fontaine, Architect.

Fig 2. First, second and third floor plans.

would not change this proportion. If we had less beds in rooms, we frequently would have to bathe patients on the ward and carry bedpans there, while, if we had more patients in rooms, we would have to put some there who, although more or less bedridden, can nevertheless go to the bathrooms, and who much prefer being on the wards where they have the society of other patients, visitors, opportunity to hear music and other forms of enjoyment. We have only one single bedroom on each floor. Another such room would sometimes be convenient, but most of our patients care little for reading or privacy, regard a single room as equivalent to solitary confinement, and object to it strenuously. This is especially true of the men.

A feature of our rooms—unique so far as we know—is that the screens between the beds, necessary when bathing patients or giving them other necessary attention were built in before the building was plastered by bolting part of the fixture to the gypsum block partitions.

When not needed, the screens swing back against the wall. They are much cheaper and much more securely fastened to the wall than any manufacturer's fixture applied over the plaster. The arms are three-eighths-inch iron pipe coated with aluminum bronze and are covered with cotton cloth which slips over the rod like a sash curtain. It was found necessary to omit the battleship linoleum floors specified in the contract, but the granolithic floors have been fairly satisfactory.

Employees at first made some objection to the basement rooms because they were partly underground. These rooms are actually about two feet below the grade, but have two ordinary size windows, and, being south rooms, have about all the sunshine there is. Employees now prefer to leave rooms of unusual size and attractiveness in the second and third stories of our old administration building to occupy these basement rooms, their chief reason being convenient location to the street and the hospital elevator.

Although the period of construction, April, 1916, to January, 1918, was too late to avoid much of the increase in cost of labor and material which occurred about that time, the appropriation of $150,000 was sufficient to cover all expenses, including grading and architect's fees, and of building and equipping

Fig. 3. Glass-partitioned ward showing two-bed cubicles.

ready for use. The structure accommodates 153 patients. As only three of the four floors, or three-fourths of the building, are utilized for patients' quarters, the latter actually cost, equipped, only $735 per bed, a low cost for war times. The basement floor, which is three-fourths above ground, contains, besides eighteen employees' rooms, a waiting room, a visitors' room, doctors' and dentists' offices, a surgical room, x-ray rooms, a laboratory, sewing, blanket, trunk, and autopsy rooms, and a morgue. Conduits were constructed for a future clock system on all wards, and space was left for a vacuum cleaning system. The appropriation for the x-ray was diverted to install a refrigerating plant in the old administration building. The tunnel transmits steam mains and returns, and electric and telephone cables, and is convenient for conveying food from the kitchen to elevators. It cost $5,000.

The above statement of costs includes everything except $1,071 for extra blankets. It includes practically all grading, expect carting of loam.

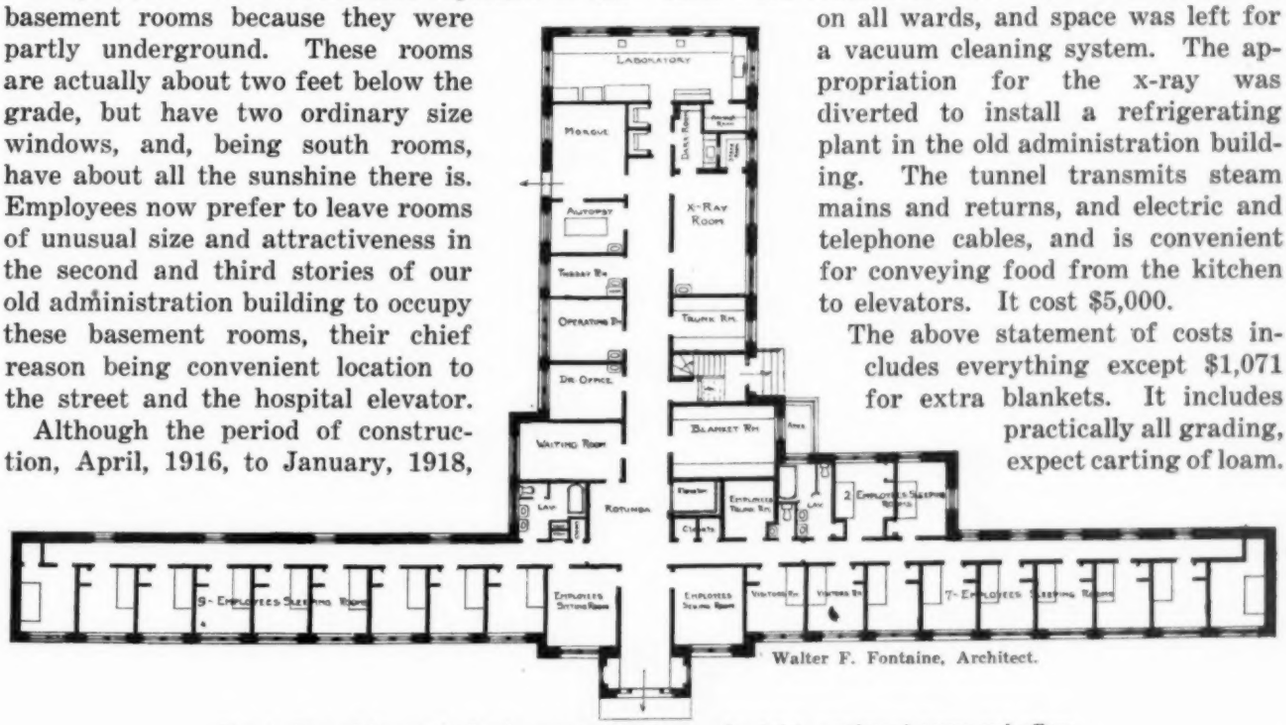



Fig. 4. Plan of basement, showing proportion of space devoted to employees' rooms and offices.

## SOME RURAL COMMUNITIES AND WHAT THEIR HOSPITALS MEAN TO THEM

### I.—A Middle-Western Community and Its Four Hospitals—Problem of Diagnostic Facilities in a Small Community—Complications Created by Numerous Institutions

By MARY KATHERINE CHAPIN, Contributing Editor, The Modern Hospital, Chicago.

FOREWORD

SINCE this brief series of articles is a tentative venture in a new field, a brief outline of the purposes which direct and the limitations which define it seems advisable.

The hospital exists to serve the community; this principle no one will deny. Yet the technique of hospital administration has become so absorbing that it attracts the almost exclusive attention of experts, and often the hospital seems to be a self-centered world in itself, as it were. Possible a study of the rural hospital in its relation to the rural community may bring to light values which now are sometimes overlooked. The method here chosen is that of a series of sketches from life of a few representative communities with their hospitals.

This preliminary study is made by one person unaided. Of necessity, therefore, it omits or touches but lightly on many important aspects of the broad subject which it introduces. It does not assume to be exhaustive in method or all-embracing in scope. The brief time and limited means at command permit the study of only a few localities, and only the salient features in these. Within these limitations every effort has been made for accuracy and fairness in presenting facts. At the same time the purpose is, not to distribute praise and blame in any particular local situation, but so to present the facts that other communities may draw from these facts any lessons which may be useful to them. Since the purpose is, not to pass judgment on individual communities and institutions, identification of the localities by name seemed unnecessary and unwise. Therefore, although the descriptions in this and the following articles are faithful reports of personal observations, the local names used are all fictitious.

Final conclusions—a solution of the rural hospital problem—would be too much to hope from such a study as this. If it succeeds in furnishing a preliminary definition or scaffolding on the basis of which further and more comprehensive work may, perhaps, be carried to completion, it will have served its purpose.

THE CITY OF MIDVALE, CORTEZ COUNTY

Midvale, the county seat of Cortez County, Indiowa, lies near the center of the county, at a point where the flat monotony of the rich western farm lands is agreeably broken by the wooded hillsides that line the courses of the Indiowa and Red rivers. The 1910 Federal census gives it a population of 9,535—nearly 10 per cent less than the population given in the census of 1900—but this aspersion Midvale indignantly repudiates, and, awaiting the fourteenth census, claims 12,000. Only very mild interest is aroused by the census figures showing that, whereas the population of Cortez County as a whole had increased slightly—less than 5 per cent—during the decade 1900-1910, the rural population of the county had decreased 7.5 per cent.

The region within the county to which Midvale naturally serves as a center comprises an area of, roughly, about two hundred and fifty square miles, with a population still more roughly estimated at about twenty thousand. (I am including within this area only the territory which finds its most convenient transportation to Midvale rather than to Cortez, Brazil, or Selby.)

The population of the community is prevailingly agricultural, American, and well-to-do. Some poverty there is, but concerning its extent and degree opinions differ; the very poor apparently cluster around the local industries such as the plate glass factory and brick works. As evidence of the small extent of poverty is cited the fact that most of the patients of the local public health nurse prefer to pay for her services (from five cents to seventy-five cents a visit). The physicians of the community are said to make good incomes as a rule.

The population of the county, according to the thirteenth census, was 90,000 in 1910. As Indiowa became a registration state for deaths only last year, there are no vital statistics available for the county. The city of Midvale has registered deaths, but has kept the records in such manner that the computation of a death rate would be a hazardous as well as a laborious task. Registration of births in the city has been optional and therefore incomplete.

There are, besides the hospitals, a number of other agencies at work to maintain health and combat disease in this region. Midvale has a part-time city health officer, a medical man. The county physician is likewise a part-time man; he is also, but by appointment, medical director of the Cortez County Tuberculosis Sanitarium. The Midvale school board has recently installed a

school nurse; the Midvale Public Health Nursing Organization supports a public health nurse, who is detailed to this service by the Red Cross; and one nurse at the Cortez County Tuberculosis Sanitarium gives two days a week to work as a visiting tuberculosis nurse. Some deduction must, it seems, be made from the American Medical Directory's showing of forty-one physicians practicing within the territory which has been spoken of as naturally tributary to Midvale, for several of these men have moved away or are no longer in practice. Apparently, however, there are enough practitioners left to supply the needs of the population. To these may be added—if reckoned as an addition—thirteen midwives and several osteopaths and chiropractors, listed in the city directory.

Outside of Midvale, the nearest hospital facilities are ten and fifteen miles away, respectively, in Cortez and Brazil to the west, and Selby to the south; to the north and east there are none within the county of Cortez, nor, indeed, any of more than twenty beds outside the county nearer than about forty miles. The nearest hospitals of two and three hundred beds are about seventy miles away.

Midvale itself has four hospitals. Two of these are private and two public, with a combined capacity of 163 beds. This census of hospitals and beds does not include the Clark Company's sanitarium at Broken Rock near the city, which. as it is exclusively for the benefit of the employees of a corporation operating outside of the county, does not enter into an estimate of local hospital facilities. This count does, however, include one private and one public tuberculosis sanitarium, which between them have over half the total hospital beds—85, to be exact. For diseases other than tuberculosis, therefore, Midvale has a total of 78 beds. Some paralytic and other chronic cases are cared for in the Cortez County Home, outside of the city, which, as it is in no sense a hospital, is not included in this count.

Oswald Memorial, the city hospital of Midvale, is the oldest of the four local institutions, having been founded about twenty-five years ago with twenty-three beds. The newly completed John Haverson Annex now gives it sixty. It is supported in part by endowment and in part by a special city tax, in addition to which is the income from paying patients. Under the terms of the original bequest to the city, indigent citizens of Midvale are cared for free. County cases, paid for by the county, are received, and also private cases, for which rates range from $1.50 a day for ward cases ($1 in the children's ward) to $5.50 for private room with bath. All classes of cases except contagious are received.

The location, in the heart of the business district, was determined by the original donor and subsequently a second bequest, under which the new annex was erected, made an adjoining location compulsory for that building. It has the disadvantage of city noise and dirt, and the advantage of convenience. Accident cases are frequently received, and the local surgeons do practically all their dressings in the hospital instead of in their offices. In a hospital which does not have an intern, moreover, there is decided advantage in being near enough to most of the local profession to be able to call one or another of them at any hour of the night or day.

When this hospital was recently enlarged from twenty-three to sixty beds, the trustees, desiring to improve the standard of service to the same degree, sought for a superintendent with larger experience than that afforded by a hospital of this class. The present superintendent, a registered nurse, who has supplemented experience by special training in hospital administration, takes her profession seriously and even enthusiastically. She undertook her present position (in the smallest hospital with which she has ever been connected) out of a desire to see what could be done toward making a model small hospital, in which ambition the trustees encourage her.

The staff includes a trained dietitian, who also acts as housekeeper. The assistant superintendent has taken training intended to qualify her as an x-ray technician. There is a training school of twenty-five pupils, graduates of which are eligible for state registration, and which affiliates with a city lying-in hospital for obstetric experience. Plans are under discussion for affiliation with the Cortez County Tuberculosis Sanitarium. A ten-hour day is at present in force. The old hospital building is being fitted up for temporary use as a nurses' home. There are no interns.

The diagnostic laboratory equipment is confined to an x-ray outfit, operated, as previously indicated, by a technician. No medically trained roentgenologist is officially connected with the institution, although several of the local practitioners who use the hospital are said to be competent to interpret plates for surgical work. The hospital has no bacteriologic, pathologic, or chemical laboratory facilities.

Oswald Memorial Hospital has no organized medical staff. "Any reputable physician" of the city of Midvale may bring his cases there and treat them according to his own ideas without question. The medical profession show little en-

thusiasm for the provision of complete diagnostic facilities. Such things cost money; those who have the money can have these advantages by paying for them, and those who have not can do without as they always have done.

To the credit of Oswald Memorial Hospital it should be said that the evils of amateur administration of anesthetics, and of fee-splitting under this disguise, are absent, for, by custom rather than rule, all anesthetics are administered by one or the other of two experienced medical men. It is said in the hospital that the local profession is most ready and cheerful in rendering charity work when necessary. Further to the credit of local practice in the hospital is the impression that surgeons who practise there take pride in a careful aseptic technique, in consequence of which postoperative infections rarely occur. This, however, is a matter of impression and not of record; Oswald Memorial Hospital keeps no records of medical performance, and the local profession does not recognize the need of them.

Next in age and in number of beds is the Midvale Tuberculosis Colony. This is a private institution, which was founded in 1904 as the outcome of a campaign carried on by the founder and medical director to interest the public in the principles of tuberculosis treatment, at a time when all doors were closed against the tuberculosis patient, as such, much as they are closed now against the venereal patient. It was the first institution in the Middle West to practise outdoor treatment of tuberculosis, and was intended to serve as a kind of experiment station to demonstrate the value of such treatment and the relative unimportance of climate as a factor. Originally it consisted of a few army tents for sleeping purposes and one large dining tent. The tents have been supplanted by cottages and hospital "apartments," together with such other buildings as are necessary to the medical and physical care of the patients. The location, on high ground overlooking the Indiowa River and the city of Midvale, is most attractive.

The present capacity is fifty-one beds. Nursing care is furnished by a trained head nurse with seven trained attendants under her; the medical director believes this arrangement preferable for tuberculosis to a staff of trained nurses. The superintendent (a son of the medical director) was formerly a hotel man. Rates run from $30 to $40 a week.

A diagnostic laboratory, at first limited in scope, has gradually been enlarged until it now includes facilities for x-ray and bacteriologic work and serum tests of all kinds, as well as the ordinary gastric and urine analyses, etc. The head of the laboratory (another son of the medical director) is a young medical man specially trained and interested in diagnosis. He is assisted by a technician.

The medical director of the Midvale Tuberculosis Colony lays great stress on the value of records in tuberculosis. He has worked out a system of records which, he believes, represent an adequate minimum, if kept up, as here, to give a complete review of the patient's condition each month.

A few hundred yards distant, enjoying practically the same beautiful location as the tuberculosis colony, is the Indiowa Valley Hospital, an institution of eighteen beds. This was founded to serve as a diagnostic hospital. At present the division of work is between internist and surgeon, in the persons of the medical director and one local surgeon called in consultation when necessary. The diagnostic facilities are those of the laboratory just mentioned, which are shared with the tuberculosis colony. For the present, "any reputable physician" is allowed to bring cases in without question or supervision, but this is regarded as a temporary potboiling expedient, to be discontinued as soon as the demand for the services of a diagnostic hospital increases. The only records kept by the hospital are those of the medical director. The superintendent is a trained nurse; nursing service is furnished by a staff of five nurses. Rates are from $30 to $45 a week.

As the Indiowa Valley Hospital and the Midvale Tuberculosis Colony are both private institutions, owned and controlled by members of one family and modeled by the same general idea, they share the same facilities in many respects (laboratories and kitchen, for instance) and much of what may be said of one applies to the other. In both, much intelligent and thoughtful care has been expended on the working out of such details as attractive decoration of rooms, comfortable lighting, the planning of doors and corridors with a view to convenient moving of beds, and, in general, to what may be called "hotel service." In both the hospital and colony there is a frankly commercial or business element; that is, both are business investments, expected to pay running expenses, interest, and profit, like any other investment. This is an honestly expressed principle of management, and seems to be compatible with ideals of a high grade of medical as well as hospital service. It means, however, that these institutions cannot take charity cases.

Across the road, a short distance away, still on high wooded ground, is the Cortez County Tuberculosis Sanitarium, which opened early this year with thirty-four beds. The medical director,

as before mentioned, is the county physician; the superintendent is a trained nurse with a number of years' experience at the head of tuberculosis sanitariums. Three graduate nurses are employed and as has been said, it is hoped to arrange for the affiliation of the training school of the city hospital with the sanitarium, thus giving the latter the use of several undergraduate nurses. The institution owns x-ray apparatus; the superintendent is expected to act as x-ray technician, and the medical director intends to undertake the responsibility of interpreting the plates. A member of the local high school faculty comes in to do bacteriologic work. The record shown me as a specimen of those kept consisted, after the entrance examination, merely of records of temperature, pulse, respiration, medication, and nourishment.

Although the sanitarium was intended primarily for indigent citizens of Cortez County, patients able to pay a little are received and allowed to pay according to their means. The county pays $1.20 a day for the maintenance of county cases. The Federal Government pays for the maintenance of tuberculous soldier patients. The institution is already crowded beyond its normal capacity of thirty-four beds, having forty-five patients at present. An additional pavilion with a capacity of twenty-five beds is being erected. A free clinic is held once a week. As previously noted, one of the nurses at the county sanitarium devotes two days a week to work in the homes of tuberculosis patients.

THE PROBLEM RAISED BY THIS LOCAL SITUATION

Now, what can be said of this group of hospitals as a whole? Do they justify their own existence? Each one certainly fulfills a distinct function and meets a distinct need in the community, although the two private hospitals, of course, are not intended to meet an exclusively local need.

Are these institutions rendering adequate and satisfactory service up to the limit of their capabilities? Certain shortcomings are fairly evident. The two public hospitals obviously need strengthening on the side of diagnostic facilities and records. The two private hospitals supply diagnostic facilities and keep records of their own patients but have not created a general appreciation or demand for these essentials in the community, which might seem to indicate a comparative failure on the educational side.

This suggests the question of the best way to solve the problem of diagnostic facilities in this community. Can diagnosis be given its best development in a small community such as this is by trying to install complete diagnostic facilities in each individual hospital, or by centralizing them? If every hospital has a good x-ray installation, is every hospital going to have a competent roentgenologist—competent, that is, not merely to make plates but to interpret them? Is the community going to supply sufficient material to keep more than one or at most two men in good practice? If the service is centralized for the whole community, on the other hand, what is the best guarantee, particularly if it is performed by a commercial laboratory, that it will be rendered, not merely to those who can pay for it, but to all who need it?

And this, again, suggests that the health and hospital problem of a small community is rendered exceedingly complex in proportion to population by the multiplication of small hospitals. Here are four hospitals, not one a real competitor of another, for each does a distinct work, yet each complicating the problems of existence for the other; only the two private institutions planned to cooperate with each other, and only the Cortez County Tuberculosis Sanitarium (the building of which was preceded by a tuberculosis survey of the county) built after a comprehensive survey of the needs and existing facilities. There are present in Midvale a wealth of good intentions and not a little really creditable achievement, but very little focusing of effort on a common plan. Not that any of these comments should be taken as unfriendly criticisms of the efforts of a community which, like many another, is doing its best to solve its own problems under existing lights and often difficult conditions.

Right here recognition should be given the fact that it is often much harder to bring a public than a private hospital up to any given standard, since, in the case of the private institution, it is necessary only for the responsible head to have a clear recognition of the measures needed and the intelligence and force of character to put them into effect, whereas, to make the same improvement in a public institution may require the education of the local medical profession and the public as well. Oswald Memorial, the little city hospital of Midvale, for instance, although it still shows room for improvement, deserves great credit for progress already made in the face of many difficulties. It may be questioned, indeed, whether the existence near by of a hospital which attracts patients able to pay profitable rates, but which offers no accommodations to others, is not a drag on the public institution rather than a stimulus to improvement in it. Does not the situation possibly tend to lead the public, so far as it recognizes the existence of diagnostic facilities and medical case records at all, to class them with the other luxuries which people can have

who are able to pay from thirty to forty-five dollars a week rather than with the necessities of good medical practice, from which the poorest and humblest should benefit just as much as the wealthiest?

The question is at least raised by the fact that the private hospitals of Midvale seem to have made little impression on the hospital standards of the community. It is presented here, not as implying a criticism or a predetermined answer, but as a point worthy of further study.

Are the hospitals used as much as they should be? As far as use means the filling of beds, apparently they are fairly well used. The two private hospitals are, I am told, kept full; the Cortez County Tuberculosis Sanitarium is already crowded beyond normal capacity; the city hospital was overcrowded before it was enlarged, and the new building is filling up at a rate which suggests that it, too, will soon be filled to capacity.

There are, on the other hand, facts which suggest that the community has not learned to rely on hospitals as much as it should. Physicians say that their patients are reluctant to go to the hospital. The infant mortality figures of the city show a large percentage of still births, probably due in many cases to overprotracted labor, which the attending physician might perhaps have terminated in time to save the child's life if he had had the patient in a hospital. As for the other uses of a hospital—most of which have not even been mentioned here—the community has yet to be brought in contact with them.

Are the existing facilities sufficient to meet all needs? Certain classes of cases are not yet adequately provided for. Thus, as has been mentioned, a number of paralytic and other chronic cases are cared for at the Cortez County Home—an obviously unsuitable place; the city hospital takes care of some others, although no general hospital welcomes such cases; probably still others are cared for in more or less unsuitable homes. Ordinary cases of contagion are quarantined in the homes; neither the city nor the county has as yet any satisfactory plan for meeting the emergency of an epidemic—they would be a most exceptional city and county if they had.

As for the question of the adequacy of existing hospitals to meet the needs of the community, apart from the special classes of cases, such as those just indicated, in the absence of vital statistics one has to rely on impressions. I am told that individual observation leads to the belief that there are many cases which do not receive hospital care but which should have it. It is to be hoped that before any new hospitals are built, and even before the existing hospitals are enlarged, it will be possible to make a survey of the community, ascertaining the essential facts (some of which are not available now), including not only mortality and morbidity figures, but also the social, financial, and psychological factors involved; and, further, to work out a definite, comprehensive community plan, embracing all the existing hospital facilities, the best means of cooperation among them and any new institutions, and some definition of the proper place of the rural hospital in the rural health program.

The problems suggested by the situation in this community are surely not insoluble, but they will not be solved except by pooling the experience of those who are working on one or another phase of them. The interest of our smaller cities and rural communities in questions pertaining to their own health has been underestimated; what has been lacking has been some means of coordinating the scattered efforts of various communities. Not until this is done, so as to permit guiding principles to be drawn from this collective experience, will our rural hospital policy take definite shape so that haphazard effort need no longer be the rule. It is with the hope of contributing in some degree to the data necessary for the creation of a program for rural communities that this series is written.

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**The Three Crosses**

The Iron cross is black as death and hard as human hate;
The wooden cross is white and still and whispers us, "Too late";
But the Red Cross sings of life and love and hearts regenerate.

The iron cross is a boastful cross and marks a war-made slave;
The wooden cross is a dumb, dead cross and guards shallow grave,
But the Red Cross reached out its arms to solace and save.

The iron cross is a Kaiser's cross and narrow is its clan,
The wooden cross is a soldier's cross and mourns its partisan,
But the Red Cross is the cross of One who served his fellowman.

—Edmond Vance Cooke, *American Red Cross Bulletin.*

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"Progress toward workmen's health insurance has probably aroused more earnest discussion in a greater number of interested groups than has any other single campaign in the whole field of social legislation. Following as a logical next step the enactment within seven years of workmen's compensation laws in four-fifths of the American states and territories—and with America stigmatized as the only important industrial nation of the world with compulsory health insurance—it is natural that definite proposals for publicly insuring against the wage-earner's sickness should have excited exceptional comment."—John B. Andrews, Ph.D., secretary, American Association for Labor Legislation.

# MANAGEMENT OF CONTAGIOUS DISEASE HOSPITALS*

## Rules Should Be Practicable and Strictly Adhered to—Method Followed from Time of Notification of Illness Until Patient Is Discharged—Rules Entered In Loose-Leaf Note Book

By D. L. RICHARDSON, M.D., Superintendent, Providence City Hospital, Providence, R. I.

THE technique employed in an infectious disease hospital[1] should be drawn up very carefully and printed. To be efficient the details of every procedure should be lucid and capable of being carried out with the least amount of work. Many institution rules are formulated in such a way that they are not practicable. This must be avoided. The resident physician should consult with the graduate nurses to make sure that the rules are feasible, but whether or not they are efficient must rest with him. Instead of having printed copies, the rules may be entered in a loose-leaf book. A recommendation for such a method is that they can be easily changed or amended. A set should be on the head nurse's desk at all times, so that new nurses may refer to them in case they are in doubt about any procedure. The underlying principle of the technique should be the same for all hospitals but the exact wording will be modified somewhat by the nature of the hospital construction and the equipment. Soon after the Providence City Hospital was opened, we had printed copies of technique, one of which was given to each doctor and nurse and to other employees who come in contact with the patients.

Fig. 1. Town car for transporting ambulatory patients and small children.

The hospital technique which follows will be arranged as logically as possible.

### AMBULANCE TECHNIQUE

*Before starting.*—The attendant goes to the telephone office when notified of a call, gets the ambulance card, and goes to the stable, where he puts on a washable duster and an ambulance cap. The cap is kept uninfected. The driver also wears a duster and a cap. It is his duty to see that the ambulance is supplied with clean blankets and pillow slips.

*At the house.*—The attendant enters with a blanket on his arm. Before touching anything

Fig. 2. Bags in stables for infected blankets, coats, and pillow cases.

in the house, he takes out his pencil and ambulance card and fills out answers to the required questions relating to the history of the case, previous illness of the patient, or any other sickness in the house. He then puts his card and pencil into an inner pocket, has the mother put on clothing taken from the hospital, a shirt, a night gown, and stockings (provided the parent does not object), wraps the blanket about the patient, and takes him to the ambulance, where he is kept wrapped and actually comes into very slight contact with the interior of the ambulance or town car. Adults who are only slightly ill may walk to the ambulance with the blanket over their shoulders. A stretcher is used when necessary. The ambulance driver helps in the removal of, but does not handle, the patient unless necessary.

*At the hospital.*—On arrival at the hospital, the patient is taken to the proper admitting room or to the bed. The attendant takes care to have someone open the door for him or else uses the inside of the tail of his hospital coat. The patient is placed on the wheeled stretcher, after which the nurse takes charge of him. The attendant next removes his coat, throws it down the laundry

1. This article includes the technique employed by the physicians, nurses, ambulance attendants, porters and laundry workers.

*This is the second installment of the fifth article in a series on "The Care of Infectious Diseases in Hospitals." The first, "The Care of Infectious Diseases in Hospitals," was published in the April (1919) number of The Modern Hospital; "Medical Asepsis in French and English Hospitals," appeared in May; "Aseptic Nursing in American Hospitals," in July; "Construction of Isolation Hospitals," in August; and the first installment of "Management of Contagious Disease Hospitals," was published in the September issue.

chute, and scrubs his hands with a brush, soap and water. He then completes the ambulance card and gives it to the nurse. He notifies the admitting physician in case he has discovered any other disease at the house, in the patient, or in anyone to whom the patient has been exposed.

The driver returns to the stable, throws his coat into a laundry bag, and washes his hands. After each call the pillow slips and blankets are placed in the laundry bag, and the interior of the vehicle, wherever it has come into contact with the patient, or ambulance or town car is washed with soap and water. Fresh pillow slips and blankets are put into the vehicle.

### WARD TECHNIQUE

*Admitting patient to main wards.*—When the ward is notified that a new case is expected, a bed is immediately prepared for it. The patient is placed on the admitting room truck by the ambulance attendant. In wards without an admitting room, patients are put into the bed assigned them. Infection is then confined to the

Fig. 3. Regulation short-sleeved uniform for nurses.

truck and the table beside it. The nurse places on the truck side or bedside table the following: culture tubes, a thermometer in jar of alcohol, pus basin, throat sticks, a glass slide (if patient is a girl under fifteen years of age) and a stethoscope. A small square of cloth is spread on the floor. The nurse then puts on a clean gown, removes the patient's clothing (if hospital clothing has not been put on) and places it on the sheet.

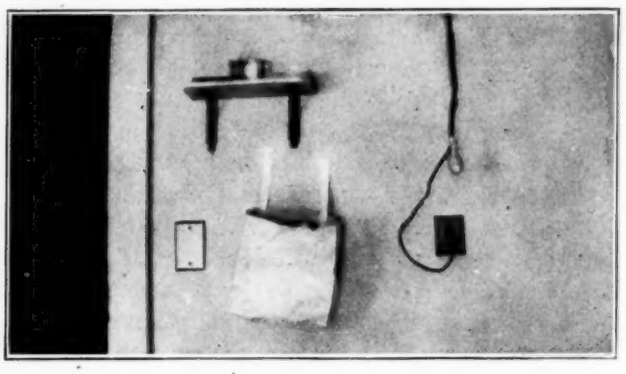

Fig. 4. Unit shelf and paper bag for contaminated articles to be destroyed.

Temperature, pulse, and respiration are taken. Cultures are taken from nose and throat, and from ears if discharging. Vaginal smears are taken from all girls under fifteen years of age, and note is made of any vaginal discharge. The case is then reported to the office as ready for the admitting physician, and is kept in the admitting room or bed, barriered, until he has seen it.

After the examination, the patient is given a tub or sponge bath, depending on his condition; the head is examined for pediculi, tincture of larkspur being used, if necessary, and then taken to the bed previously prepared for him.

The truck cover and blanket are thrown down the laundry chute. Truck and table are washed with soap and water. Throat sticks are thrown away. Stethoscope, pus basin, and anything else which has been contaminated are properly cleaned with soap and water or sterilized by boiling. The bath tub, if used, is washed out with soap and water. The thermometer and nurse's gown may be placed in the room with the patient if needed.

A specimen of urine is sent to the laboratory. Daily and four-hourly charts are prepared, and the patient is put on liquid diet unless otherwise ordered. All new cases are put in dentention except cases with doubtful admission diagnosis, which are barriered. Cultures from nose and throat are repeated on the second day of hospital residence.

*Admitting patients to isolation wards.*—The admission technique used in the main wards applies also to the isolation wards with the following exceptions: (1) since there is no admitting room, the patient is placed directly in the room assigned to him; (2) he receives a sponge bath only.

*Discharging patients.*—When a patient is to

be discharged, the nurse puts on a clean gown and removes the patient's clothing in his room. With a sheet about him, he is carried or directed to the bathroom. The sheet is folded so that the outside may be used for the patient to stand on after his bath. He is given or takes a shampoo and a tub bath of soap and water. Clean clothing from the locker room, ward, or home is put on, and the patient is ready for discharge.

In wards with a discharging room, patients receive their baths twenty-four hours before discharge and are then put into the discharging room.

*Transferring patients.*—When a patient is to be transferred, he is first wrapped in a blanket from the bed. One or two gowned porters then take him in their arms or on a stretcher to the designated ward and room. If a stretcher is used a clean blanket is first spread over the canvas so that only the handles are contaminated.

DETENTION, BARRIER, AND CONVALESCENT CARDS

The card posted on the door of a room may or may not refer to all cases in the room. If, for example, the majority of cases in a room are in detention, a detention card is placed on the door, but this does not preclude the possibility of placing barrier or convalescent cards on separate beds inside the room. The following distinction between detention and barriered cases must, however, be observed. All detention or convalescent cases in a given room constitute a single unit, whether the cards are on the beds or on the door; but each bed-barriered case in a room constitutes a separate unit, and only when the barrier card is on the door do all barriered cases in a room constitute a single unit. The following examples illustrate these principles. With a detention card on the door of a room and barrier cards on two beds inside the room, we have three units—one detention and two barriered.

Cards remain posted until the physician in charge orders them removed.

*Detention and Barrier Technique.*—Detention technique and barrier technique are the same, the object of each being the complete separation of units. The beds of a unit should be six feet distant from the beds of any other unit. Each patient has a bed, a table and a chair. Each unit has its own thermometers, gowns, and other accessories. Any utensil must be properly disinfected before it is used in another unit. The nurse wears a separate gown in each unit and scrubs her hands before passing from one unit to another. Patients in the same unit may mingle with each other, but not with those of any other unit. Toys and other time-passing devices are allowed at the discretion of the nurse, provided there is no interchange between units. Detention and barriered cases use bedpans and urinals instead of the toilet room, except on written order.

Whenever a patient not being treated in a single unit develops a rash, sore throat, sudden rise in temperature, vaginal discharge, or any other suspicious symptom, the nurse in charge must barrier the case at once and telephone the office or notify the physician in charge.

*Convalescent technique.*—Convalescents are those cases in the main wards who have passed through the detention period. For the most part they are treated in the smaller side rooms. In the latter case they are marked by convalescent cards on door or bed. Convalescent technique is the same as detention and barrier technique (see above) with certain important exceptions. Convalescents in the side rooms may visit the convalescent room during the day-time. All convalescents may associate together, indoors and outdoors, under the nurse's supervision. They may use the toilet and bath room marked "convalescent." They are not allowed to loiter or to touch anything when passing through the corridor.

*Out-of-doors technique.*—The nurse opens the doors for patients entering or leaving the ward. Older children and adults allowed out of doors without supervision must not mingle with patients outside of their own unit, must not leave the hospital grounds, and must not enter any other building. Infraction of these rules is punished by withdrawal of the outdoor privilege.

Younger children are taken out by a nurse or gowned nursemaid. If they are from more than one unit, she watches that they do not mingle.

Infants are taken out by a gowned nurse, someone opening and closing the doors for her. Infants and children too small to be trusted at a distance from the ward buildings are placed at intervals of six to eight feet in chairs, or on blankets spread on the ground. In any case units must be always kept apart and a nurse must change her gown and wash her hands between different units.

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**Recipe for Making a Good Nurse**

Mix together equal parts of pluck, good health, and well-balanced sympathy; stiffen with energy and soften with the milk of human kindness. Use a first-class training school as a mixer. Add the sweetness of a smile, a little ginger, and generous amounts of tact, humor and unselfishness, with plenty of patience. Pour into the mold of womanhood, time with enthusiasm, finish with a cap, and garnish with ambition.

The sauce of experience is always an improvement to this recipe, which, if followed closely, should be very successful and exceedingly popular.—Alumnae Record, Buffalo General Hospital.

# THE SOUL AND BODY OF A HOSPITAL STATISTICAL DEPARTMENT

## The Organization, Operation, and Purpose of the Statistical Department of Mount Sinai Hospital, Cleveland—Reasons for Records—Spirit of the Attending Man

By FRANK E. CHAPMAN, Superintendent, and LILLIAN C. FREEDMAN, Medical Statistician, Mount Sinai Hospital, Cleveland

### I. The Informing Purpose: By F. E. Chapman

MUCH has been written, and much more has been said, relative to the maintenance of a proper accounting system for the vital work of an institution, or in other words, the keeping of proper medical records. A large percentage of these articles have laid especial emphasis upon the physical machinery necessary to keep such a record, and have forgotten to a large extent any reference to those intangible things that are essential to the securing of case histories, that is, an understanding on the part of the staff of the reason for such records, a willingness on their part to cooperate with the administration to a common end, and a recognition on the part of the administration of the necessity to see that after the record is laboriously made it is put to the use for which it was primarily taken.

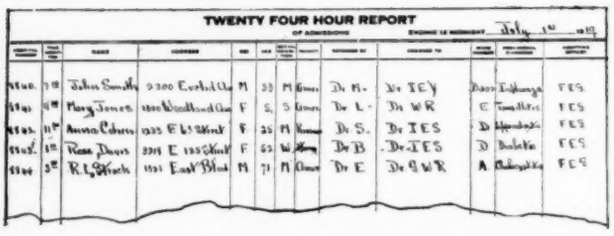

TWENTY FOUR HOUR REPORT

Fig. 1. Twenty-four hour report. Actual measurement of original, 11 by 8½ inches.

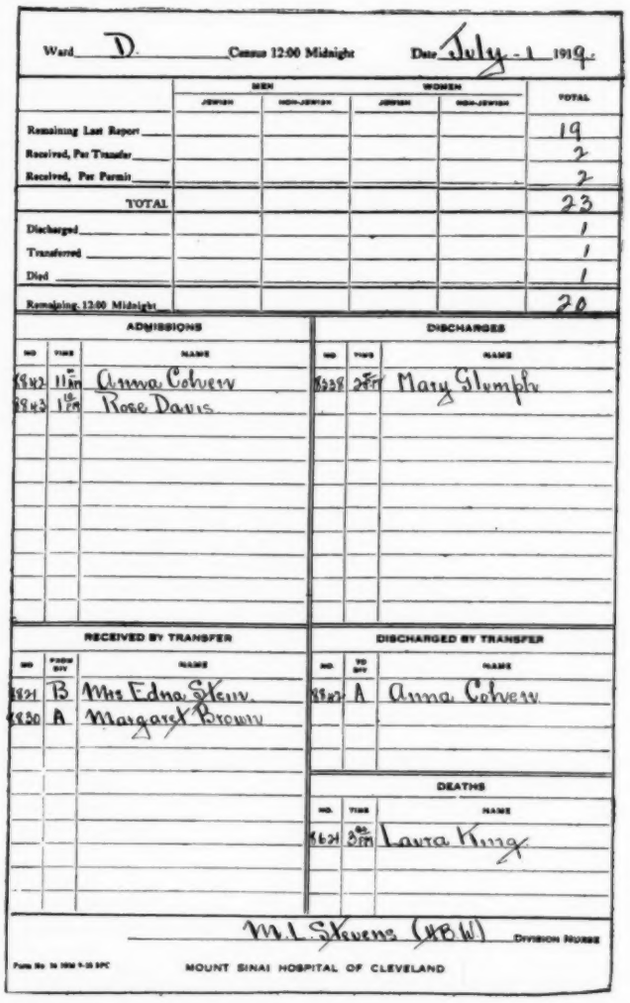
One of the most inspirational talks to which it has ever been my privilege to listen was given at a meeting of business men looking toward the financing of a communal-philanthropic movement. After some little time had been spent in discussing ways and means of this financing, rather a noted divine arose and spoke on the soul of philanthropy, stating that the topics being discussed were of little moment to him; the thing that interested him most was the spirit of the movement. To plagiarize in such a good cause is permissible, and an attempt will be made to visualize for you the spirit of service to the patient that has been paramount at all times in the organization and operation of our record system, and to attempt to show how, from such a spirit on the part of the attending staff, house staff, statistician, and record room, naught but a better medical performance can come.

#### REASONS FOR RECORDS

Medical records are kept for numerous reasons: first and foremost, of course, for the betterment of the patient's condition; secondly, as an increased facility for the medical man in handling the patient; thirdly, for the purpose of research; and fourthly, for the protection of both the attending man and the hospital.

#### OBLIGATION FOR RECORD

The task of making a complete record of medical performance is rather an odious one, and one to which the average practicing physician does not lend himself very readily. It is, therefore, necessary that your physician be educated to recognize the absolute need for such a record, and that the records when taken are used to his advantage, in order that he may have demonstrated to him vividly that his labors have not been in


Ward D. Census 12:00 Midnight Date July 1 1919.

MEN / WOMEN — JEWISH / NON-JEWISH / JEWISH / NON-JEWISH / TOTAL

Remaining Last Report 19
Received, Per Transfer 2
Received, Per Permit 2
TOTAL 23
Discharged 1
Transferred 1
Died 1
Remaining 12:00 Midnight 20

ADMISSIONS: 11 Am Anna Cohen; 1 Pm Rose Davis

DISCHARGES: 2 Pm Mary Stumpf

RECEIVED BY TRANSFER: B Mrs Edna Stein; A Margaret Brown

DISCHARGED BY TRANSFER: A Anna Cohen

DEATHS: 3 Pm Laura King

M. L. Stevens (MBW) Division Nurse

MOUNT SINAI HOSPITAL OF CLEVELAND

Fig. 2. Ward census sheet. Actual measurement of original 6½ by 10 inches.

vain. The obligation for the taking of proper medical records, therefore, is two-fold; one on the part of the attending man to see that the record is made, and one on the part of the administration to establish the machinery for such record-taking, and to provide means for analysis of the records after they have been taken.

### ANALYSIS OF RECORDS

A great many administrators have been con-

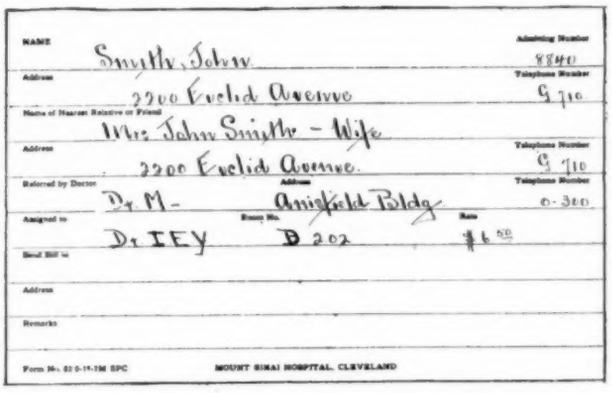

NAME Smythe, John — Admitting Number 8840
Address 2200 Euclid Avenue — Telephone Number 9 710
Name of Nearest Relative or Friend Mrs John Smythe - Wife
Address 2200 Euclid Avenue. — Telephone Number 9 710
Referred by Doctor Dr M- — Address Ansfield Bldg — Telephone Number 0-300
Assigned to Dr IEY — Room No. D 202 — Rate $4.00
Send Bill to
Address
Remarks
Form No. 52 5-17-2M SPC MOUNT SINAI HOSPITAL, CLEVELAND

Fig. 3. Form for notification of admission of patient. Actual measurement of original, 8 by 5 inches.

fronted with the statement by both attending and house men that there can be no good reason for taking histories if the records are filed and never referred to afterward. There is not a single argument that can be advanced refuting this contention. If histories are not checked; if omissions are not called to the attention of attending men; if end-results are not charted, then the mere taking of the records is productive of no good whatever, in fact, it is an added expense without any return.

The attending staff may have the best intentions in the world, but after all, their primary work is to look after the sick, and it should not be incumbent upon them to check up the actual physical taking of histories, and the analysis of end-results as shown by these histories. As a matter of fact, there are few staffs that have in their personnel one who can bring to such an analysis an unprejudiced, impersonal opinion that is absolutely essential. It is not meant that they should be relieved in any sense of the word from their obligation of seeing that histories are properly written, but the physical labor entailed in doing the work should be taken from their shoulders.

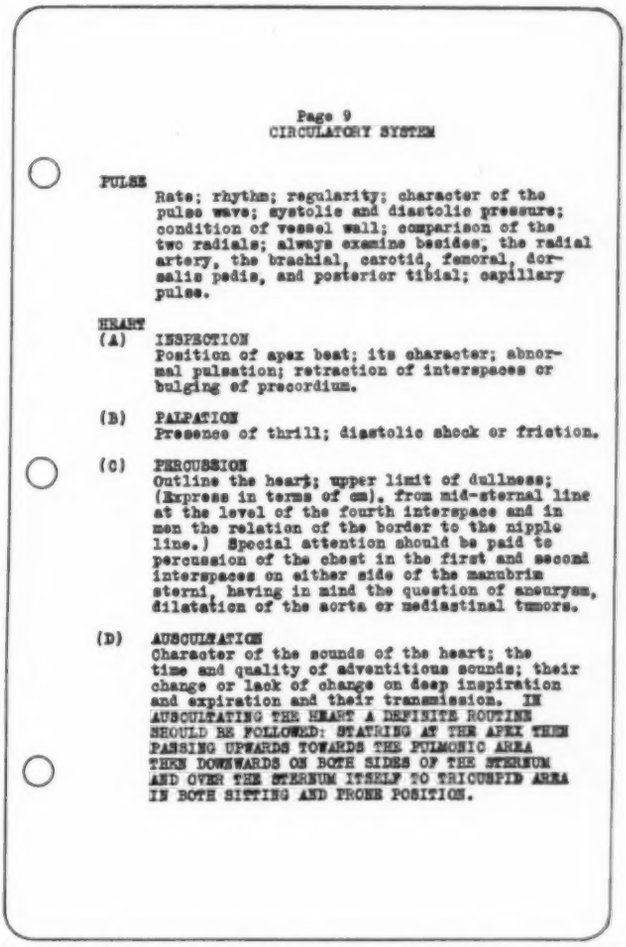
### SPIRIT OF THE ATTENDING MAN

A thorough understanding of the end in view is very essential in any venture; this is especially true in the keeping of medical records. Your attending staff must be thoroughly imbued with the reason for the keeping of records, and be made familiar at all times with the end-results developed from a study of these records. Therefore, to my mind, one of the most important things is the establishment of the office of record clerk or statistician, as may seem best to term the position.

It must be clearly understood that this record clerk or statistician is not to be considered in any sense of the word as a judge of medical performance. It is his or her duty merely to set up in statistical form the facts developed by an analysis of the medical performance, and to present these facts in such form that they can be of maximum benefit to the organization as a whole. Certain definite routine procedure should be followed, and this procedure applied to large and small alike; the director of the service being under the same scrutiny as the junior assistant in that service. Facts developed by such an analysis should not be construed as a personal reflection, but rather as an attempt on the part of the administration to call omissions to the attention of the individual in an attempt to improve the performance of the whole.

### HISTORY MEETINGS

With such a spirit prevailing, it is rather interesting to watch a history meeting at which


Page 9
CIRCULATORY SYSTEM

PULSE
Rate; rhythm; regularity; character of the pulse wave; systolic and diastolic pressure; condition of vessel wall; comparison of the two radials; always examine besides, the radial artery, the brachial, carotid, femoral, dorsalis pedis, and posterior tibial; capillary pulse.

HEART
(A) INSPECTION
Position of apex beat; its character; abnormal pulsation; retraction of interspaces or bulging of precordium.

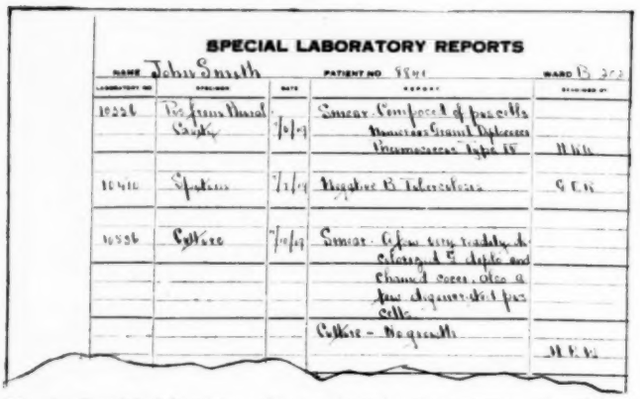
(B) PALPATION
Presence of thrill; diastolic shock or friction.

(C) PERCUSSION
Outline the heart; upper limit of dullness; (Express in terms of cm). from mid-sternal line at the level of the fourth interspace and in men the relation of the border to the nipple line.) Special attention should be paid to percussion of the chest in the first and second interspaces on either side of the manubrium sterni having in mind the question of aneurysm, dilatation of the aorta or mediastinal tumors.

(D) AUSCULTATION
Character of the sounds of the heart; the time and quality of adventitious sounds; their change or lack of change on deep inspiration and expiration and their transmission. IN AUSCULTATING THE HEART A DEFINITE ROUTINE SHOULD BE FOLLOWED: STARTING AT THE APEX THEN PASSING UPWARDS TOWARDS THE PULMONIC AREA THEN DOWNWARDS ON BOTH SIDES OF THE STERNUM AND OVER THE STERNUM ITSELF TO TRICUSPID AREA IN BOTH SITTING AND PRONE POSITION.

Fig. 4. Specimen page of history form. Actual measurement of original, 5½ by 7 inches.

the statistician presides. These meetings are attended by the resident staff, and at various times, members of the attending staff. It is also interesting to note the reaction when certain omissions in the history are charted against the individual attending man, to see the attempts on the part of


SPECIAL LABORATORY REPORTS

NAME John Smith PATIENT NO. 5540 WARD B 303

| | | | | |
|---|---|---|---|---|
| 10226 | Throat Nasal Culture | 7/6/19 | Smear: Composed of pneumococci, Gram Negative Diplococcus Pneumococcus type IV | H.W.H. |
| 10411 | Sputum | 7/7/19 | Negative B. Tuberculosis | G.C.W. |
| 10556 | Culture | 7/8/19 | Smear: Gram stain reveals short Gram Negative diplococci and Gram positive cocci, also a few degenerated pus cells. | |
| | | | Culture - No growth | H.K.W. |

Fig. 5. Special laboratory sheet. Actual measurement of original, 8½ by 11 inches.

the individual to justify such omissions, and to attempt to correct a statistical record that to his mind is not proved on the medical record. The comparative statement of performance is watched very closely indeed, and there is very seldom a monthly report submitted to them that some member of the attending staff does not attempt to have a fact incorrectly stated, changed, not because he is trying to improve his record alone, but because he believes the written record of the hospital does not state the true conditions. After all, the history must be the basis upon which all performance is recorded. It is at these meetings that all diagnoses are finally approved and classified, in order that they may be filed. The interest of the staff in these meetings is very keen, and has grown keener from time to time, as the spirit of the service that we are attempting to perform has been more thoroughly imbued in the minds of the men.

That we are fortunate in having so close an understanding between our record room and the staff goes without saying. This close understanding is absolutely essential to effect the type of performance desired.

In the following pages has been outlined in detail the machinery that the administration has established for the taking of these records. This detail is interesting insofar as it shows the pains that we have taken to secure this performance. That the end has justified the means I think none who are acquainted with the conditions in this institution will gainsay.

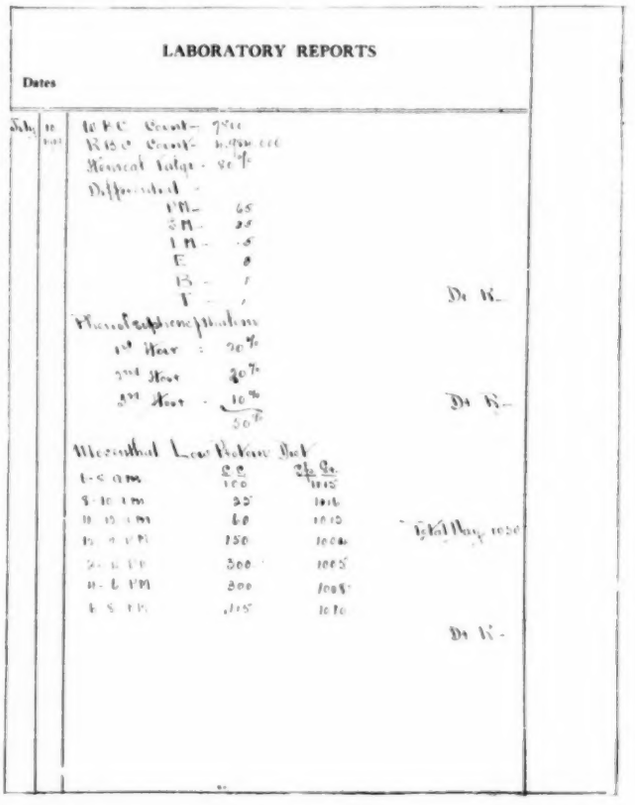
## II. The System Followed: By L. C. Freedman

### ADMISSION OF PATIENTS

On entrance into the institution, the patient is sent into the admitting room, where the following routine of admission is performed:

The patient's name, address, telephone number, name of nearest relative, physician, and similar primary information is obtained; an admission number (issued in chronological order), ward, and intern is assigned to the case. All this information is incorporated in the Form 62, which is sent into the main office, immediately upon the admission of the patient.

Patient's name, address, physician, and intern are entered in the patients' register book, and also on the twenty-four-hour report, the latter being


LABORATORY REPORTS

Dates

July 10 1919

W.B.C. Count - 7500
R.B.C. Count - 4,250,000
Hemoglobin Value - 80%
Differential -
P.M. - 65
S.M. - 25
L.M. - 5
E. - 0
B. - 1
T. - 4
Dr. H.
Hemolysis Phenolphthalein
1st Hour - 20%
2nd Hour - 20%
3rd Hour - 10%
50%
Dr. H.
Microsulfhal Low Pressure Test
c.c. — Sp. Gr.
5 - 10 A.M. 100 1015
10 - 2 P.M. 35 1016
2 - 6 P.M. 60 1010
6 - 10 P.M. 150 1004
10 - 2 A.M. 300 1005
2 - 6 A.M. 300 1008
6 - 8 A.M. 105 1010
Total Vol. 1050
Dr. H.

Fig. 6. Laboratory report sheet. Actual measurement of original, 8¼ by 10⅝ inches.

completed at midnight daily, and issued in duplicate, one copy being sent into the main office, and the second copy into the record room.

A history folder, incorporating the above-mentioned information, is filled out for each patient, and sent to the ward with the patient.

Before being sent to the ward, the patient is bathed, his temperature, pulse and respiration are taken, as well as nose and throat cultures. On female patients, vaginal smears are also made.

In the event the patient has a reservation for a private room, the admitting officer takes the patient into the room and there obtains the history. The routine procedure of admission is performed in the patient's room instead of in the admitting room.

For the admission of a newborn, a similar procedure is followed as for a private-room patient.

### ADMISSION OF PATIENT ON WARD

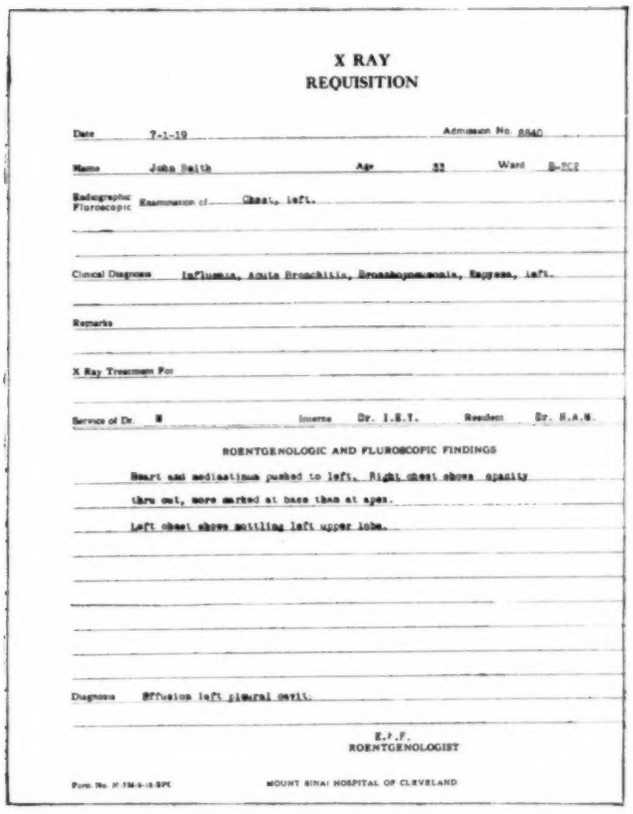
When admitted to the ward, the patient is assigned a bed. The resident and intern are notified of the patient's admission, and after the patient has been visited, orders are left for treatment.

From the history folder, which accompanies the patient to the ward, the history sheets for the chart are made up.

The ward census is kept up daily, in duplicate, showing the number of admissions, transfers, discharges and deaths; one copy of the census is sent into the main office, and the second copy is sent into the record room.

### OFFICE WORK

The main office is notified of the admission of a patient by Form 62, made out in the admitting



X RAY
REQUISITION

Date 7-1-19 Admission No. 6840

Name John Smith Age 32 Ward B-202

Radiographic Fluoroscopic Examination of Chest, left.

Clinical Diagnosis Influenza, Acute Bronchitis, Bronchopneumonia, Empyema, left.

Remarks

X Ray Treatment For

Service of Dr. H Interne Dr. I.S.T. Resident Dr. H.A.M.

ROENTGENOLOGIC AND FLUROSCOPIC FINDINGS

Heart and mediastinum pushed to left. Right chest shows opacity thru out, more marked at base than at apex.

Left chest shows mottling left upper lobe.

Diagnosis Effusion left pleural cavit.

E.F.F.
ROENTGENOLOGIST

Form No. P-3M-9-19-SPC MOUNT SINAI HOSPITAL OF CLEVELAND

Fig. 7. X-ray requisition. Actual measurement of original, 8⅜ by 11 inches.

room. The information contained on this form is entered on the telephone operator's board for reference.

From the daily ward census, the registrar keeps the patient's register board up to date, which shows the patient's name, room number or ward, physician, date of admission and financial status.

All reservations for private or semi-private rooms are made by the attending physician through the registrar. Reservations for the ward beds are made through the registrar, after being approved by the social service department, except in case of emergency, when the patient is immediately admitted into the institution, and investigation made on the following day by the social service department. Ward rates are established, but may be modified by the social worker, after the case is investigated; the rates varying in each case according to the financial condition of the patient. Private and semi-private room rates remain the same in all cases.

From the Form 62, a ledger card is made up in the main office for each admission, and sent into the accounting department, where all charges are properly entered, and all bills for hospital care are rendered weekly.

### EXAMINING OF PATIENTS

Within twenty-four hours after admission, a complete history is taken, a physical examination performed, and this information dictated according to the requirements of our history forms, on the dictating machines by the intern in charge of the case. These records are then sent to the record room to be transcribed.

The provisional diagnosis is made, wherever possible, upon admission of the patient, but in any event, the provisional diagnosis must be made within forty-eight hours after admission of the patient. In medical cases, the final diagnosis

CONSULTATION

Admission No. 6840

Date 7-1-19

To Dr. N. Visiting Physician

Name John Smith No. 6840

Ward B-202 is referred to you. Our findings in the case are follows

Influenza, Acute Bronchitis, Bronchopneumonia, Empyema, left

Please report in regard to Empyema

If the patient requires treatment in your service, please take charge of that aspect of the case.

Dr. H. V. Physician
For H

Date 7-1-19

To Dr. A. V. P.

Our findings in the case of John Smith Ward B-202

referred to us by you are as follows

Fluid in left lung

We recommend the following line of treatment
Thoracentesis

V. Physician

All requests for consultations between members of the Medical and Surgical Staff, and also the opinion of the consultant, are to be made in writing unless the consultation is held personally. Such written opinions are to be incorporated in the Hospital records.

Form No. 62-M-9-19 MOUNT SINAI HOSPITAL OF CLEVELAND

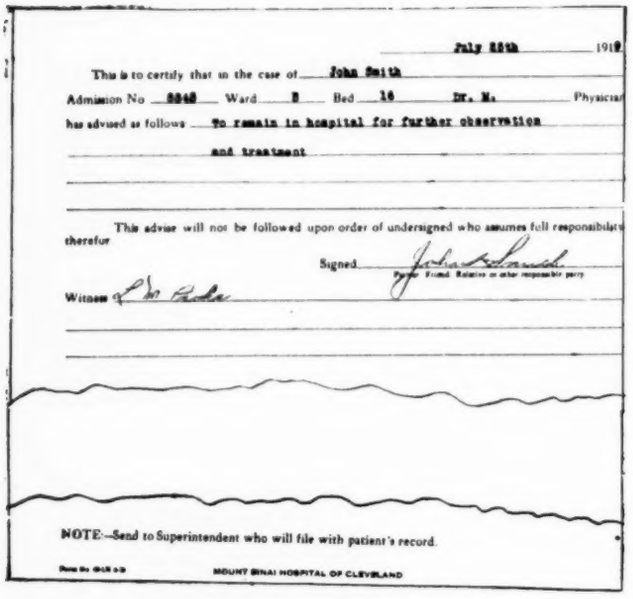
Fig. 8. Consultation form. Actual measurement of original, 8½x11 inches.

should be made within a reasonable time after admission. The pathological findings determine the final diagnosis in surgical cases.

### ROUTINE

Daily observation notes are made in medical cases, during the ward rounds. These notations are generally dictated by the visiting staff to the interns.

In surgical cases, the operative procedure is


July 25th 1919

This is to certify that in the case of John Smith

Admission No 8848 Ward B Bed 16 Dr. M. Physician

has advised as follows To remain in hospital for further observation and treatment

This advise will not be followed upon order of undersigned who assumes full responsibility therefor

Signed John Smith
Patient Friend, Relative or other responsible party

Witness Dr Rule

NOTE:—Send to Superintendent who will file with patient's record.

MOUNT SINAI HOSPITAL OF CLEVELAND

Fig. 9. Release form. Actual measurement of original, 8½ by 11 inches.

dictated by the first assistant, and transcribed in the record room. Post-operative notes concerning the patient's condition, removal of drains, packs, clips, sutures, condition of wound, and possible infections, are noted by the intern.

All routine laboratory work is charted by a laboratory assistant, on special laboratory report sheets. All surgical pathology is done by the pathologist or his assistants, and is charted by a member of the laboratory personnel. Special laboratory work, including gastric analyses, Mosenthal tests, blood counts, differential counts, kidney functional tests, is done by the intern and charted on the routine laboratory report sheet by the intern.

When an x-ray of a patient is desired, a requisition made out by either the attending physician or intern, is sent to the x-ray office, where the routine performance for x-ray of the patient is carried out. After the x-ray is taken, the report is charted by the roentgenologist and sent to the ward to be incorporated in the patient's chart.

Consultations, when indicated, are requested by the various services, and replies noted by the physician consulted, within twenty-four hours.

Ward rounds are made daily by the visiting and house staff of each individual service. On Sunday mornings, joint ward rounds of all services are made by the house and visiting staff.

Discharge notes are written either by the visiting physician or the intern, before the patient is permitted to leave the institution. In the event the patient desires to leave before being officially discharged, it is necessary that a release be signed, which relieves the hospital of any further responsibility in connection with the condition of such patient.

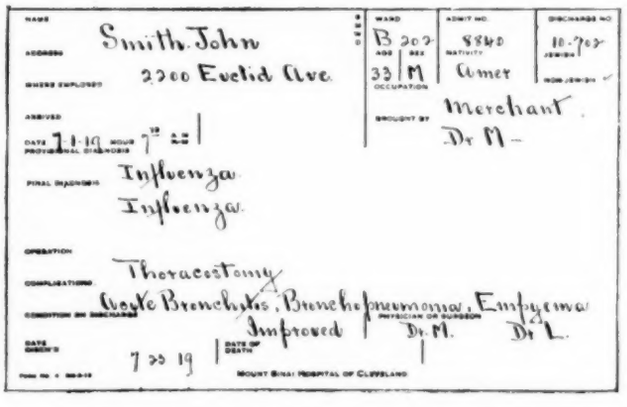
### RECORD-ROOM WORK

All dictated cylinders, including histories and physical examinations of patients, operative procedures, surgical pathology, histology, and autopsies are sent into the record room to be transcribed on the transcribing machines.

After being transcribed, the completed histories are checked by the statistician or by the intern, and sent to the wards within forty-eight hours after the admission of the patient.

Bi-weekly, ward rounds are made by the statistician, in order to check the patients' charts on the wards, that is, to see that histories and physical examinations are promptly taken and dictated on all patients admitted; routine work including admission, pre-operative, post-operative, routine, and discharge urinalyses; daily notes concerning the patient's condition charted; consultations accepted, and in short, to see that the patient is given every possible advantage of the facilities offered by our methods of procedure.

Daily, a copy of the ward census and twenty-four-hour report is received in the record room.


NAME Smith. John

ADDRESS 2200 Euclid Ave.

WHERE EMPLOYED

ARRIVED

DATE 7-19 HOUR 7 PM

PROVISIONAL DIAGNOSIS Influenza

FINAL DIAGNOSIS Influenza

OPERATION Thoracostomy

COMPLICATIONS

CONDITION ON DISCHARGE Acute Bronchitis, Bronchopneumonia, Empyema

DATE DISCHARGED 7 22 19

WARD B 202

ADMIT NO. 8848

DISCHARGE NO.

AGE 33 SEX M

NATIVITY Amer

OCCUPATION

BROUGHT BY Merchant

PHYSICIAN OR SURGEON Dr M.

Improved Dr. M. Dr L.

DATE OF DEATH

MOUNT SINAI HOSPITAL OF CLEVELAND

Fig. 10. Index card as filled in on admission. Actual measurement of original, 8 by 5 inches.

An index card is filled out for each admission in accordance with the twenty-four-hour report. Contained on these cards is the primary information concerning the patient, including the name, address, ward, admission number, social condition, sex, occupation, date and hour of admission, physician, and provisional diagnosis. These cards

are then filed alphabetically in the "current list of patients." All cards of patients discharged or expired are taken from the "current list of patients," discharge date noted, and filed in the "incomplete file."

The charts of the patients discharged or expired are received daily in the record room, and for each patient discharged, there is one chart received, and one corresponding index card put into the "incomplete file."

On Tuesday of each week, a history meeting, attended by the residents, interns, and medical statistician, is held for the purpose of completing

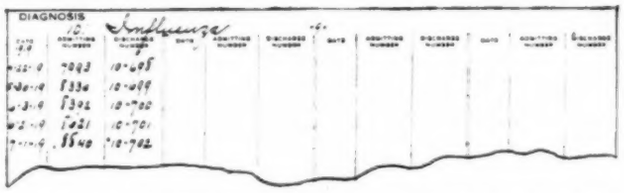



Fig. 11. Diagnosis card. Actual measurement of original, 8 by 5 inches.

the histories of patients discharged during the preceding week (which histories have been in the "incomplete file") checking the diagnoses, and signing of the histories. The histories are then turned over to the statistician, ready for classification, entry, analysis, and filing.

### METHOD OF RECORDING HISTORIES

The International Classification of Diseases was adopted by us, because it is more universally used than any other nomenclature, also because it is more elastic and offers the greatest possibilities for statistical purposes. This nomenclature was originally compiled by a committee comprised of representatives of many nations, for the purpose of establishing a universal nomenclature for vital statistical purposes. Since the object of statistics kept for communal or national purposes is unlike that of institutional records, it was therefore necessary that this classification be revised in several respects; for instance, little attention is given to any surgical performance, which is of vital interest to us. In order to record this information, we originated an "operative classification." Of primary interest for ordinary statistics is the manner in which a patient is injured, rather than the injury sustained. It is our desire, however, to record both the traumatism and the resulting injuries. We are as much interested in the record that a patient received a fractured skull as in the fact that he was injured by an automobile. We have, therefore, in addition to the original traumatic file, arranged an "injury classification," which covers all possible injuries, and is classified anatomically. Also, in the original diagnosis classification, there were "diagnosis" cards desired by the state boards of health, which would be of no particular value as institutional records, and vice versa, these were accordingly modified and revised to meet our needs. In this manner, we succeed in keeping an acurate record of every possible performance, both medical and surgical, which adds greatly to the value of our statistics.

### CLASSIFICATION OF HISTORIES

Histories are classified and filed according to their final diagnoses. The discharge number, determined by the final diagnosis, is assigned from the nomenclature, and a serial number is given, determined by the number of patients previously discharged with a similar final diagnosis; for instance, "influenza," according to the nomenclature is No. 10. Assuming that we have previously discharged 701 influenza cases, the next patient discharged with a final diagnosis of influenza, will be assigned the discharge number of 10-702.

Entries are then made on the diagnosis, complication, operative and injury classification cards. These entries consist of the date of admission, admission number and the discharge number. No name is entered on any of these cards, as both the admission and discharge numbers give the key to the name.

Under each disease index card, there are two entry cards, viz: "diagnosis" card, and a "complication" card. Only one entry for each patient discharged is made on the "diagnosis" card, whereas there may be any number of complications entered on the various "complication" cards. In this way, the number of entries on the "diagnosis" cards of each individual disease, equals the number of patients discharged. The "complication" card is used for all complications indicated,

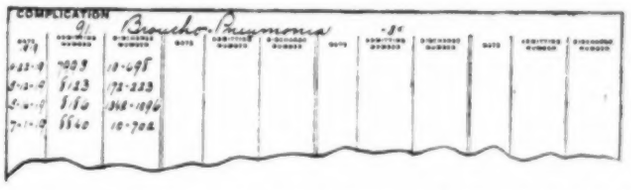



Fig. 12. Complication card. Actual measurement of original, 8 by 5 inches.

for instance, if the patient discharged with the final diagnosis of influenza, and assigned the discharge number 10-702 (as explained above), had acute bronchitis, bronchopneumonia, and empyema as complications of the influenza, in addition to a thoracostomy for the empyema, the "complication" cards under each of the complications will bear a similar entry to the one on the "diagnosis" card of influenza, thus serving as a complete cross-reference. The same entry is also made on the operative classification cards. The number of entries on a "diagnosis" card and

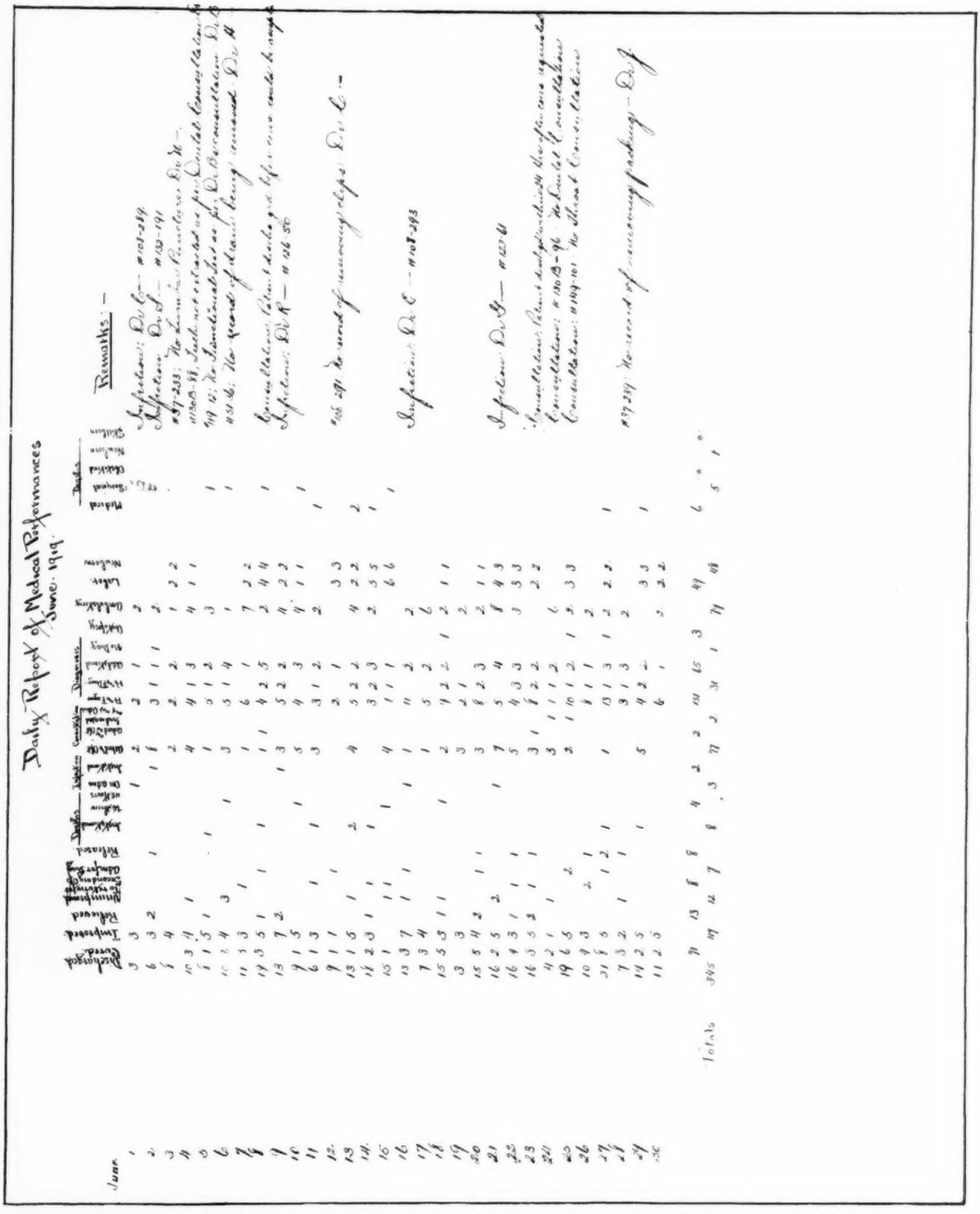



Fig. 13. Daily report of medical performances. Actual measurement of original 16¾ by 13⅞ inches.

"complication" card under each individual disease, equals the number of patients treated for the disease, regardless of whether treated as a primary or secondary condition; for instance, if a patient is discharged with a final diagnosis of acute tonsillitis, complicated by influenza, the "diagnosis" card for acute tonsillitis would be used, and the "complication" card for influenza. Previously discharged, we have assumed 702 cases of influenza, treated as a primary condition, plus

this case treated for influenza as a complication, would give a total of 703 cases of influenza treated.

The operations are entered in the operative classification, each individual operation being classified individually, regardless of whether all the operations were done at one time or at different stages. If a hysterectomy, salpingo-oophorectomy and incidental appendectomy is performed on one patient under one anesthesia, nevertheless, an entry is made on each individual operative card.

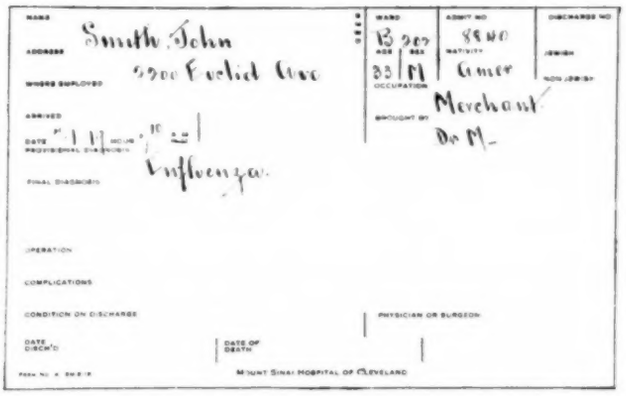



Fig. 14. Completed alphabetical index card. Actual measurement of original, 8 by 5 inches.

The discharge number, final diagnosis, operations performed, and the discharge condition, are entered on the alphabetical index card in the "incomplete file," for each individual patient. These cards are then filed alphabetically in the permanent file. In the patient's register book, kept in the admitting room, the final diagnosis, discharge number and date are entered in order to complete the record there. All the foregoing entries having been completed, the histories are ready for analysis.

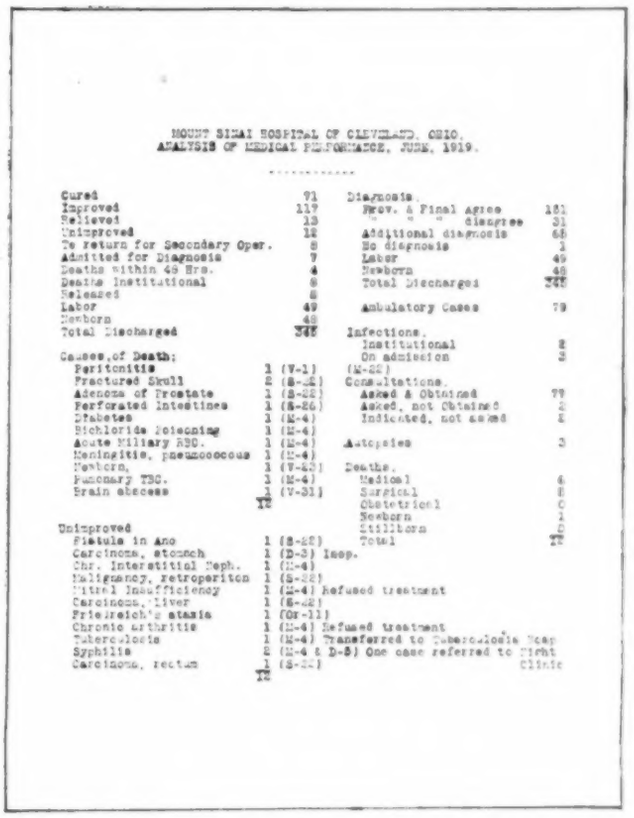
## ANALYSIS OF HISTORIES

In analyzing our histories, an attempt is made to obtain a true record of the medical performance. In order to obtain this information, it is necessary to check each history individually, and chart any possible omissions of performance. The chart must first be complete as to history, physical examination, daily notes, operation, post-operative notes, urinalyses, laboratory work, pathology, and bedside notes. Should any portion of the chart be omitted, it is immediately checked up and called to the attention of the doctor. If an intern fails to note the fact that a drain was removed, this information is charted on the visiting physician's card as a failure of performance. If there is no surgical pathology reported, this is also charted against the visiting physician. This is of particular value as is shown by the card of one surgeon which shows three dilatation and curettages performed without any surgical pathology to indicate that they were legal. This of course, was immediately checked up. If any consultations are not accepted, or if they are indicated and not requested, or advice given in a consultation not followed, that is all charted. Particular attention is given to the source of infections in surgical cases.

A summary of the medical performance is made daily, which indicates the number of patients discharged, and their condition on discharge. The number of provisional and final diagnoses which agree, disagree, additional or no final diagnosis. The number of labor and newborn cases, ambulatories, deaths, consultations, infections, whether on admission or institutional, and autopsies are all noted. From this daily record, a monthly report of medical performance is compiled and submitted to the visiting staff and resident staff for their own information.

The histories are then clamped and filed, each history being clamped individually, and not bound.

Our histories are filed serially, according to the final diagnosis. In this way, all cases of a like final diagnosis are filed together, that is, all No. 10's (No. 10, as explained, is influenza), are filed together beginning with 10-1 and filed serially to 10-702, so that in order to ascertain the next discharge number, it is merely necessary to look up



MOUNT SINAI HOSPITAL OF CLEVELAND, OHIO.
ANALYSIS OF MEDICAL PERFORMANCE, JUNE, 1919.

| | | | |
|---|---|---|---|
| Cured | 91 | Diagnosis. | |
| Improved | 119 | Prov. & Final Agree | 181 |
| Relieved | 13 | " " " Disagree | 31 |
| Unimproved | 12 | Additional diagnosis | 68 |
| To return for Secondary Oper. | 8 | No diagnosis | 1 |
| Admitted for Diagnosis | 7 | Labor | 49 |
| Deaths within 48 Hrs. | 4 | Newborn | 48 |
| Deaths Institutional | 6 | Total Discharges | 347 |
| Released | 8 | | |
| Labor | 49 | Ambulatory Cases | 79 |
| Newborn | 48 | | |
| Total Discharged | 347 | Infections. | |
| | | Institutional | 2 |
| Causes of Death: | | On admission | 3 |
| Peritonitis | 1 (V-1) | (M-22) | |
| Fractured Skull | 2 (S-22) | Consultations. | |
| Adenoma of Prostate | 1 (S-22) | Asked & Obtained | 79 |
| Perforated Intestines | 1 (S-26) | Asked, not Obtained | 2 |
| Diabetes | 1 (M-4) | Indicated, not asked | 2 |
| Bichloride Poisoning | 1 (U-4) | | |
| Acute Miliary TBC. | 1 (U-4) | Autopsies | 3 |
| Meningitis, pneumococcous | 1 (U-4) | | |
| Newborn, | 1 (V-22) | Deaths. | |
| Pulmonary TBC. | 1 (M-4) | Medical | 4 |
| Brain abscess | 1 (V-31) | Surgical | 8 |
| | 12 | Obstetrical | 0 |
| | | Newborn | 1 |
| Unimproved | | Stillborn | 0 |
| Fistula in Ano | 1 (S-22) | Total | 12 |
| Carcinoma, stomach | 1 (D-3) Inop. | | |
| Chr. Interstitial Neph. | 1 (U-4) | | |
| Malignancy, retroperiton | 1 (S-22) | | |
| Mitral Insufficiency | 1 (U-4) Refused treatment | | |
| Carcinoma, liver | 1 (S-22) | | |
| Friedreich's ataxia | 1 (OR-11) | | |
| Chronic arthritis | 1 (U-4) Refused treatment | | |
| Tuberculosis | 1 (U-4) Transferred to Tuberculosis Hosp | | |
| Syphilis | 2 (U-4 & D-3) One case referred to Light | | |
| Carcinoma, rectum | 1 (S-22) | | Clinic |
| | 12 | | |

Fig. 15. Monthly analysis of medical performances. Actual measurement of original, 8½ by 11 inches.

the last serial number under any individual disease classification. The purpose of this method of filing histories is that it eliminates the necessity of searching through the entire files for histories of a like nature, should our staff desire the histories for research work.

AMBULATORY CASES

Cases coming into the institution for treatment of any kind, and not being assigned to a room or ward, are called "ambulatory" cases.

Admission numbers are assigned "ambulatory" cases the first time admitted. Subsequent admissions retain the primary admission number, and are entered each time on the twenty-four-hour report.

History folders are made out on the first admission, and operative procedures dictated for each admission and put into the one folder according to date.

The routine entries are made the first time the patient is admitted, that is, alphabetical index card, "diagnosis" and operative classification card. For subsequent admissions, the same admission and discharge number, alphabetical index card and "diagnosis" card is used. However, the operation performed on each admission is entered individually on the "operative" classification card, thus giving the surgery credit for their surgical performance, and at the same time putting no additional entries on the "diagnosis" cards, as this is considered the same patient as on previous admission, and the object of our "diagnosis" cards is to obtain the number of patients treated under each diagnosis, and not the number of treatments made.

To cite an example: if A is admitted as an "ambulatory" case to have casts applied for club feet, an entry is made on the "diagnosis" card for "club feet" and on the operative card for "manipulation and cast for club feet." If the patient is admitted a second time for removal and reapplication of casts, an entry is made only on the operative card. Should an entry be made on the "diagnosis" card for each admission of the same "club foot" case, our records would not show the number of cases treated for "club feet," but the number of treatments made.

The alphabetical index cards are kept in what is called the "ambulatory" file until the end of each year, when they are filed in the permanent alphabetical file, and new numbers assigned for the new year.

MORTALITY

In order to facilitate the compilation of an annual report, all entries for patients expired are made in red ink. In this way, when obtaining the statistics annually, it is not necessary to go through the charts to figure the motality rate. This is also of value in obtaining the mortality rate of any individual disease.

## EFFICIENCY IN TUBERCULOSIS SANATORIUM ADMINISTRATION

### Cooperation Between Trustees and Superintendent, Elimination of Friction, Sufficient Funds for Equipment and Maintenance, and Laws Governing the Control of Tuberculosis Patients, Important Factors

By HERBERT F. GAMMONS, M.D., Superintendent Woodlawn Sanatorium, Dallas, Texas

BRIEFLY stated, the object of a tuberculosis sanatorium is to teach the patient how to live so that he will not succumb to the disease or infect others.

The prevailing opinion, especially among the laity, is that sanatoriums in a great many instances are for purposes of isolation; that a patient who is far advanced and practically moribund should be shipped off to a sanatorium so that he will not infect his associates. They do not realize that this advanced case has already infected every one around, and that, from a standpoint of efficiency, it is the worst possible thing to send the patient to a sanatorium.

Unfortunately, a great many of the trustees of sanatoriums are of the opinion that far-advanced cases should be sent to a sanatorium and, as many of them are laymen, they do not understand the medical side of this big question.

So the first step to take in promoting efficiency in a sanatorium is to have an understanding as to whether the sanatorium in question is to have for its object the isolation of the patient as a focus of infection, or whether it is to be a place for patients to get better and to receive instruction dealing with their lives after leaving the sanatorium. There are without doubt too many isolation sanatoriums, and far too few institutions for the treatment and instruction of early curable cases.

The laws governing the appointment and the length of the term of office of trustees and superintendent are often the cause, indirectly, of inefficiency in sanatoriums. Many trustees have been

appointed on purely political grounds, and in a great many instances the superintendent has received his appointment through a similar source. I do not wish to minimize the good work done by some of these trustees and superintendents so appointed. On the other hand, the harm done by others can not be too severely criticised. A well-trained and capable superintendent, if hampered by a board of trustees who are politically appointed or ignorant of the disease, has very little opportunity to run a sanatorium efficiently.

Laws governing the control of patients in a sanatorium or after they leave are necessary. It is not always a good idea to discharge a patient who does not obey the rules. Some other method of handling these cases similar to that adopted by the Iowa legislature should be used in every state. Allowing patients to become far advanced before entering the institution, spending thousands of dollars to get them on their feet, permitting them to go out and do as they please, and then to return in a few months to die, can scarcely be termed efficiency. A patient must be made to take care of himself and his associates, and laws are absolutely necessary before this will be done.

The length of time a patient is allowed to remain in a sanatorium often determines whether the sanatorium has been efficient. If a patient goes to a sanatorium, stays six months or a year, then goes home and very soon breaks down, when by a little longer stay at the sanatorium he would have been practically cured, the sanatorium has not been efficient. On the other hand, if patients feel that they can stay as long as they please, in many instances they will not try to get well. Patients who are permitted to go back to a sanatorium time and again do not consider taking the treatment very seriously. They know that they can go to work when they feel like it, and, if they break down, they can return to the sanatorium.

The feeding question in a sanatorium is very important. While it should be the policy of all institutions to be as economical as possible, the superintendent who tries to keep his *per capita* down to a certain figure, regardless of results, is not efficient. Tuberculosis patients need good food, well prepared, and sufficient in quantity. A well-fed patient will not be compelled to remain at the sanatorium as long as one who is not properly fed.

The staff of an institution should be so divided that there will be no friction, and each head of a department should have authority to employ or discharge those in his department. All overlapping of departments should be done away with, as more trouble is caused in institutions on this account than on any other. The different department heads must be competent to perform their respective duties, and furthermore, they must be allowed to do things according to their own ideas as far as possible. It is usually best to have for the department heads people who have worked in similar positions in other institutions. Those who have had tuberculosis and have succeeded in getting the disease under control, are also desirable.

No set of rules can be formulated under which all sanatoriums can be operated. Institutions differ according to the location and the class of patients, and to compel superintendents to manage institutions according to any one set of rules is to promote inefficiency.

The superintendent of a tuberculosis sanatorium should be, preferably, one who has worked up from assistant in some other institution. There are very many competent superintendents, however, who have not worked in institutions previous to their appointments as superintendent; but they have had to work in some instances doubly hard, and they have not had the opportunity to profit by other superintendents' mistakes.

The head of a tuberculosis sanatorium must be a man well trained in the different phases of the tuberculosis question. He must be able to handle patients and help; and he must be kind, but firm. Furthermore, he must not be one who imagines things, but must treat with facts entirely.

More depends from an efficiency point of view upon the qualifications of the superintendent than upon those of any other individual. It is he who must lead the trustees as well as the patients and employees. In addition, he should be the leader in all branches of tuberculosis work in his locality.

To summarize: the way to secure efficiency in a sanatorium is to have:

1. A definite object for the institution.
2. Trustees who know how to cooperate with the superintendent.
3. A superintendent well qualified and invested with the proper authority to allow patients to stay the necessary length of time.
4. A staff so organized that friction is eliminated.
5. The people of the locality in which the institution is located educated on the needs and value of such an institution.
6. Sufficient funds for equipment and maintenance.
7. A suitable location with buildings so constructed that maximum results will be obtained with the minimum expenditure of energy and money.
8. Laws governing the control of tuberculosis patients.

# OUT-PATIENT DEPARTMENTS AND SOCIAL SERVICE IN CATHOLIC HOSPITALS IN THE UNITED STATES*

## Movement for Development of National Catholic War Council's Reconstruction Plan—Clinical Work and Social Service Incorporated in Training of Nurses

By the Rev. John O'Grady, Associate Professor of Sociology, Catholic University, Washington, D. C.

HOSPITAL social service is not by any means a new institution. In the very early history of the church, special orders were established for the purpose of ministering to the sick in their homes. The principal functions of the confraternities of charity and the daughters of charity founded by St. Vincent de Paul were the care of the sick and the poor in their homes.

"From 1667 until the French Revolution, the hospitals of Paris had their full-fledged social service auxiliaries, including solicitors and contributors of funds, ward visitors, and a staff of home visitors. The first group apparently succeeded in obtaining financial support; the second brought to the sick the material and moral aid of which they had need; while the third group, informed by the second concerning the requirements in each case, made domiciliary visits and advised, directed, and assisted convalescents on their departure from the hospital.

"The whole system was discontinued at the time of the French Revolution, but shortly afterwards it was re-established, first in the Hotel Dieu and then in other hospitals, until finally each hospital once more had its social service organization."[1]

The Catholic sisterhoods which have devoted themselves to hospital work in the United States, unlike their European branches, have, for the most part, felt that the care of the sick in the home was outside of their field. Their work has been primarily institutional. In the European branches of the Sisters of Charity, for example, we find a number of Sisters who devote themselves exclusively to outside work. No provision for such home visitation is found in the constitution of the American branch of the same order.

Before the war, many of the Catholic sisterhoods in the United States were beginning to feel the need of medical social service. At that time, at least eight Catholic hospitals were employing social workers in connection with their out-patient departments, and many others were securing the services of volunteers to follow up patients from the wards and dispensaries. The work of developing medical social service, however, in connection with Catholic hospitals was bound to progress very slowly without an active educational campaign conducted by persons having the confidence of those in charge of the hospitals.

There has always been a considerable amount of out-patient work in connection with Catholic hospitals in the United States. So far as can be learned, about fifty of the largest Catholic hospitals in the United States had dispensaries in operation in November, 1918. The work in these dispensaries was, however, rather poorly organized. In some cases there was no hospital staff, and a corresponding dispensary staff was the exception.

The foregoing is a brief description of medical social service and out-patient departments in Catholic hospitals in the United States prior to November, 1918. At that time the National Catholic War Council, as a part of its reconstruction work, decided to inaugurate a movement for the development of out-patient departments and social service work in connection with Catholic hospitals in the United States.

In inaugurating this movement the Council was actuated by two important considerations: In the first place, it was anxious to see the Catholic hospital in a position where it might be of the greatest assistance to the soldier or his dependents in the way of medical care and advice. Under the Soldiers and Sailors Insurance Act, our wounded men have a right to medical care at government expense. The Bureau of War Risk Insurance, which is charged with the administration of the Act, has confided to the United States Public Health Service the problem of providing medical care for wounded soldiers who are compensation cases. The facilities of the Public Health Service and the Home Service Section of the Red Cross have not been equal to the task. They need the cooperation of all agencies engaged in health work. The thousands of men whose compensation has not yet been settled need care and attention. Even after they have formally become charges of the Bureau of War Risk Insurance, many of the men prefer to go to their own physicians and to private institutions for medical care.

The Catholic War Council endeavored to convince the heads of Catholic hospitals in the more

*Read at the Twenty-first Annual Convention of the American Hospital Association, Cincinnati, September 8-12, 1919.

[1] Goldwater, S. S.: "Who Started Hospital Social Service?" Editorial, The Modern Hospital, Vol. xii, pp. 356 (1919).

important industrial centers that, in order to discharge their duty toward the soldiers and their dependents, they should establish out-patient and social service departments. The Council offered to send experts to the different hospitals in order to show the sisters and doctors how the work should be organized. It also volunteered to place one or more medical social service workers at the disposal of the hospital for a period necessary to insure the success of the work.

The second important consideration influencing the War Council in this movement was the need of making Catholic hospitals more efficient as educational institutions in preventive medicine. The war has shown the American people—in fact, it has shown all peoples—that they have been very negligent in matters of health. We have allowed our children to grow up with remedial defects which make their lives unhappy, undermine their vitality, and impair their economic usefulness. We have permitted them, without medical examination, to enter occupations to which they were not equal. As a result of our neglect of health education, large numbers are unacquainted with the elementary facts of hygiene. Very little has been done to put into practice our knowledge of employment, of proper selection of foodstuffs, and of housing and living conditions as related to the problem of ill-health.

The National Catholic War Council felt that the 557 Catholic hospitals in the United States might be made a powerful factor in the solution of the health problems arising out of the war. Their cooperation was particularly necessary in order to enable Catholic child-caring institutions and parochial schools to make more adequate provision for the medical care of children. Medical examination of school children will scarcely attain its purpose if our hospitals are not equipped with out-patient departments whereby the physical defects brought to light by the medical examination may be remedied. Better results could be obtained in the medical care of children in institutions if organized hospital clinics were available where they might be examined before admission, and to which they might be referred for medical care by institutional physicians.

Between December 1, 1918, and August, 1919, our representatives have conferred with the superintendents of thirty Catholic hospitals in the United States. Of these, thirteen have adopted the Council's plan and have in operation well-organized out-patient and social service departments. Of the remaining fifteen, three have signified their intention of adopting the plan as soon as they are given technical assistance.

Shortly after the opening of its campaign, an old and well established hospital in one of the largest cities on the Atlantic seaboard was approached. After a prolonged discussion the Sister in charge decided that it was impossible for her institution to engage in the work. Another hospital in the same city was then approached. We decided to place at the disposal of the institution for a short period a trained social worker if they would agree to organize their staff both for hospital and out-patient departments. Our offer was accepted and within one month the work was under way. After the superintendent of the first hospital learned of the success of the out-patient and social service departments of the second hospital, she immediately decided to establish similar departments in her own institution. Within the past two months a third hospital in the same city has decided to establish an out-patient and a social service department. During the summer months all three hospitals cooperated in conducting a special course in medical social service for their nurses and others.

The first requisite for good dispensary work is a well-organized and sympathetic staff. Only one of the thirteen hospitals which cooperated with the Catholic War Council had a dispensary staff. Five of the institutions had no staff organization in the hospitals. In these institutions, of course, the first step was to organize a hospital staff. The staff of the dispensary in each case was made coordinate with the hospital staff. The head of each department in the hospital was appointed head of the corresponding department in the dispensary and was held responsible for its general policies. The actual work of each dispensary department was placed in the hands of an associate who was given one or more assistants, according to the needs of the department. A great part of our success in staff organization was due to the able work of Dr. Frederick Rice of Bellevue Hospital, New York, who, throughout the period of the war, was associated with the Surgeon-General's office.

Since the dispensary in each case was an integral part of the hospital, the general problems of dispensary administration were placed in charge of a representative of the hospital superintendent, who generally acts in the capacity of registrar. She admits to the dispensary, directs patients to the proper clinics, refers them to the head of the social service department when, in her judgment, they are social service cases, and keeps a registry of attending physicians.

Modern social welfare implies the placing of a greater number of persons in a position where they will have better access to all the things,

both of body and soul, which may be needful for their welfare, the adjusting of our institutions so that all may have more nearly equal opportunities, and the rendering of necessary services to persons who are unable to obtain these services themselves. It has been our constant endeavor to convince the hospitals that dispensary service is a necessary service. We sought to convince them that it should be free to all who are not in a position to pay for the specfic type of service required. No matter what a man's economic status, the out-patient departments working under our auspices will give him free preliminary examination. This is a duty which we believe the hospitals owe to the public. The individual may be suffering from a disease which makes him a danger to others—and there are few diseases nowadays which are purely an individual concern. We are coming more and more to see that neglect of the first symptoms of ill-health is a serious social concern. It is, therefore, the duty of the hospital to take every step necessary to teach people to take care of their health, and one of the best means of doing this is by the adoption of a liberal policy in providing free medical examination. If more persons are induced to take treatment as a result of these examinations, the physicians will certainly profit in the long run. Free medical examination, however, does not mean that patients who are able to do so should not be required to pay the cost of materials used in the examination.

It has been the general policy in the past to deny dispensary treatment to persons who were receiving more than a living wage. To this general rule exceptions have been made when a person who was receiving little more than a living wage needed very expensive treatment. In estimating a living wage a great number of dispensary superintendents have relied on their own fancy and have paid very little attention to important budgetary studies, with the result that we had almost as many different notions of wage standards as we had dispensary superintendents. We have aimed to convince the dispensary superintendents that a living wage is a changeable quantity.

For the benefit of the social service workers, we have brought up to date the various budgetary studies of wages made before and during the war. The standard which we set up was not, of course, an inflexible one, and the hospitals were given to understand that there were a great many other things to be considered in determining the merits of each individual case.

Medical social service is born of the idea that a trained social worker is capable of supplying the physician with a great many facts in regard to the patient's history, his employment, his home conditions, and his habits of life, which are essential for correct diagnosis, and that she can be of invaluable assistance to the physician in teaching the patient how to carry out his orders.

When social service is first introduced into a hospital, many difficulties must be overcome, especially when its introduction is not the result of a movement within the hospital. The physicians must be convinced of the value and the need of social service. It is not sufficient that they be sympathetic towards the work. They must learn when and how the social worker can assist them. The hospital authorities must also learn to appreciate the practical value of social service. They must realize that the social worker is capable of doing more than obtaining a position for a person out of work.

In the thirteen Catholic hospitals which have established social service during the past eight months, the social worker comes in contact with the dispensary patient in three ways. Her first hope of getting in touch with the cases is through the admission desk. We realize that much more effective work can be done if the admission desk is in charge of a trained social worker. In only two hospitals has this been found possible. In three others we have induced the hospital authorities to place an intern at the admission desk. The interns readily learned to appreciate the value of social service and have avoided much confusion in directing patients to the proper clinic. At first we found that the doctors were very slow in referring patients to the social service department, but after the department had been in operation for two or three months there was a remarkable change in their attitude. In nearly every one of the hospitals, two or more progressive men at the head of departments had a remarkable influence in educating the other physicians in the need of medical social service and its possibilities for the medical profession.

In order to make sure that no cases needing social service are slighted, the social workers, at the end of each day, go over the medical records of all cases admitted to the dispensary during the day.

We have succeeded in having standard record forms introduced into all the social service departments thus far established. These forms were made up after careful study of the forms adopted in all the more important medical social service departments in the United States. We do not claim that they are perfect, but we have done everything possible in order to have them embody the best experience on the subject.

Clinical work and social service should form a part of the training of all nurses at the present time. Without training in these branches their sphere will be very limited. They will not be prepared for work in the fields of public health or industrial nursing, and even in private nursing they will scarcely have the vision necessary for effective work. Training in clinical work has an additional advantage in Catholic hospitals in that the members of the Catholic sisterhoods in these institutions are generally recruited from the training schools. The teaching of social service to the nurses will, therefore, have a tendency to develop a greater sympathy for social service in the Catholic sisterhoods. These thoughts we have endeavored at all times to bring home to the hospitals. As a result of our efforts, work in the clinic and social service department forms a part of the training of nurses in all the institutions with which we have dealt. In three of the institutions special courses in social service have been instituted for the nurses in training.

The time has been too short to gauge with any degree of accuracy the results achieved by the medical social service departments established under our auspices. In fact, the institutions have been so busy with the essentials of organization that they have not yet had time to work out many of the details. In some of the larger cities, like New York, Boston, Washington, Philadelphia, and Chicago, the workers have been compelled to devote a great part of their time to the after-care of the soldier, in cooperation with the Red Cross, United States Public Health Service and the Federal Board for Vocational Education. This immediate and necessary work has prevented them from developing some of the other fields of social service. It may be safely said, however, that the social service departments have created a new vision in the Catholic hospitals. It has made them emphasize more and more preventive and follow-up work.

Medical social service is destined to have a great influence not alone on Catholic hospitals, but on Catholic social work generally. It will be the means of providing more adequate care of the health of children in parochial schools and Catholic child-caring institutions. On our advice one of the most important Catholic dioceses in America has, within the past two months, enacted a ruling that all children about to be admitted to child-caring institutions must have a medical examination in one of the hospital clinics. We have every reason to hope that in the near future other dioceses will follow the example of this one in utilizing the hospital out-patient departments to provide diagnostic and medical treatment for all children under their care.

The ideal which we have set before the Catholic hospital out-patient and social service departments is not the providing of medical relief for those who are unable to pay any medical fee, but rather the providing of specialized medical care for the wage earner at a price which he can afford to pay. The wage earners of our time are shut out from the best things in modern medicine because they are unable to meet the fees of the specialist. Health insurance will not meet the need of the wage earners in this respect under the present system of medical practice. This situation may be met by the organization of evening clinics where the working men may obtain specialized medical care for the payment of a relatively small fee. During the course of the next few months we expect to have a number of evening clinics established in connection with Catholic hospitals. In cooperation with the United States Public Health Service we have already established one such clinic in New York City.

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### Treating Babies in an Eye Hospital

The ophthalmic experience in the Royal Eye Hospital, Manchester, is very good, and it is also very comprehensive. Venereal disease in the mother frequently results in the eyes of the child being infected when born, and there is a special ward for such babies to accommodate several mothers and their infants. The mother accompanies the baby, so that breast-feeding may be continued. There is also a larger ward for conjunctivitis in infants. Here every child sent in for treatment must be accompanied by someone who is capable of looking after it, usually a relative. In one case, the child was brought in and looked after by its great-grandmother. The nurse in charge of the ward is responsible for the treatment of the babies' eyes only, the child's relatives having to see to its bathing and dressing, the washing of its clothes, and its general care. There is a special day-room set apart for these women.—*The Nursing Mirror, London.*

### Special Need of Breast-Feeding for Illegitimate Children

In the report of the deaths of six babies at a Southport Nursing Home, it was shown that the mothers of the children, who were all illegitimate, came into the Home for twelve or fourteen days, and then went out, leaving their children to be looked after by the certified midwife in charge. The coroner's verdict was to the effect that the babies died from mal-assimilation of food, and the midwife emphasized the fact that the children mostly started life as "poor little wrecks." This evidence points most strongly to the need for retaining the mothers for at least a year in such homes, so as to give the children the benefit of breast-feeding. In most of the homes in connection with the Diocesan Councils for Preventive Work the mother-to-be is only received on condition that she remains with the child for a year, paying back by degrees when she gets back to work a certain proportion of the money expended on her.—*The Nursing Mirror.*

# CROSSED INFECTIONS AND METHODS FOR PREVENTION*

## Experience Has Shown Numerous Essential Conditions for Holding Crossed Infections to a Minimum—Negligence Not Always Responsible—Everlasting Vigilance Fundamental Requisite of Technique

By ARCHIBALD L. HOYNE, M.D., Medical Superintendent, Municipal Contagious Disease Hospital, Department of Health, Chicago

WHEN we speak of a crossed infection having occurred in a hospital, we mean that the patient involved has contracted another disease in addition to the one for which he was admitted. For example, if a child is received at a hospital suffering from scarlet fever and later contracts diphtheria, the latter disease, under such circumstances, is termed a "crossed infection."

Crossed infections are the bane of all contagious disease hospitals, and in respect to certain diseases, such as measles and chickenpox, cannot be absolutely prevented. Nevertheless, much can be done to hold these crossed infections down to a minimum. Before referring to past and present experiences along this line at the Municipal Contagious Disease Hospital, certain other explanations should be made regarding this topic.

In the first place, we all know that wherever a large number of children are assembled, be it in schools, orphan asylums, non-contagious disease hospitals, or similar institutions, outbreaks, particularly of measles or chickenpox, occur from time to time, and no special indignation is aroused because of such unfortunate occurrences. Nevertheless, when a parent hears of his child's contracting measles in a contagious disease hospital, he is up in arms and ready to condemn the institution and all connected with it, together with the city, county, or state which maintains it. Yet, if the average individual will acknowledge that the stamp of inefficiency should not, necessarily, be placed upon the school or children's hospital where a measles outbreak may occur, why is he so ready to censure a similar mishap in a contagious disease hospital where the possibilities for secondary infections are, as a rule, vastly greater?

### MANNER OF OCCURRENCE

As already indicated, the average person infers, when crossed infections occur in a contagious disease hospital, that negligence must be responsible. Now, while it cannot be denied that this is possible, yet it is by no means always true.

Assume that a child is sent to a contagious disease hospital suffering from diphtheria, and at the time of admission there are no cases of measles in the institution. The patient is placed in a room where there may be from one to eight or ten other diphtheria patients, or the case may be placed in a cubicle (glass-partitioned room) with one or two other patients suffering from a similar disease. The accommodations depend on the type of hospital. At the end of five or six days this patient breaks out with measles. This is not a crossed infection for which the hospital is in any way responsible, because sufficient time has not elapsed since the child was admitted to have measles develop from any hospital case even if there had been one. It simply means that this patient was exposed to measles a week or ten days before he was sent to the hospital. The hospital had no knoweldge of such a fact, and possibly the family was not aware of it.

There was nothing in the nature of the child's symptoms at the time of admission to suggest that he would develop measles; else he would have been isolated (placed in a room by himself). Nevertheless, measles has been brought into the hospital by the child. What happens? Even though the patient is removed from the room at the earliest appearance of the rash, every other child in that room who has not had measles at some previous time is going to have the disease. And, worse than that, it may spread through the hospital like wildfire if the most stringent precautions are not taken, for measles, to a certain extent, is an air-borne disease. It may pass from one room to another simply by means of a door which happens to be left open, a factor which, ordinarily, would be of little consequence in the case of diphtheria or scarlet fever. Now, as has been said, the first patient who developed measles was not an example of a crossed infection occurring in the hospital because the disease was contracted prior to admission. But any other cases of measles which may follow at fourteen-to-eighteen-day intervals would be crossed infections because, in these instances, the disease would be acquired in the hospital and not outside of it. All that has been said concerning measles applies with equal force to chickenpox.

When the Municipal Contagious Disease Hospital was hastily opened in January, 1917, in order to cope with the outbreak of scarlet fever at that time, the institution was quickly over-crowded.

*From the Octennial Report, Department of Health, Bureau of Hospitals, City of Chicago, 1911-1918, John Dill Robertson, M.D., Commissioner.

The hospital equipment was incomplete, there had not been time to develop a well organized staff of physicians, and the nurses for the most part were not trained in the new line of work which they were undertaking. Consequently, although at the time of opening only scarlet fever patients were to be admitted, it is not strange that many crossed infections occurred. The number of crossed infections seems to have been excessive, and yet there were undoubtedly many exigencies to account for a great part of them.

### PREVENTIVE MEASURES EFFECTIVE

In May, 1917, the medical staff was better organized, the necessary institutional equipment was practically complete, and the nurses by that time had had more experience and were better trained in contagious disease work. Furthermore, certain changes were made in the distribution and care of patients, and, as a result, the number of crossed infections rapidly declined. In fact, the greater part of the 1917 crossed infections occurred during the first four months of the year. In 1918, the number of crossed infections showed a marked decrease as compared with the preceding year, and was no higher than might have been expected for a hospital of this character.

In January, 1919, when the present medical superintendent, who, since May, 1917, had been more or less closely associated with the hospital as consultant and more latterly as attending physician, assumed charge, certain measures were inaugurated with the object of reducing crossed infections to a minimum and of placing responsibility for any crossed infection which might occur. It is believed that these efforts were contributory to the results obtained for the first month of 1919 when no crossed infection developed in the hospital, although there was a daily average of approximately two hundred patients.

### METHODS OF CONTROL

When a patient enters the Municipal Contagious Disease Hospital for some certain disease he is examined minutely in the receiving room. The mere fact that a patient is brought to the hospital suffering from scarlet fever is no proof whatever that he may not also have diphtheria, or vice versa. A diphtheria patient, when received in the examining room, may be found to have Koplik spots in the mouth, a sure sign of oncoming measles. Included in the examination is the history of past illnesses, which has been provided by the ambulance surgeon, who obtains such information from the patient's family when the ambulance calls for the case. Following the examination in the receiving room, the patient is assigned to the proper floor, according to the disease. If the patient has any suspicious symptoms which make a complete diagnosis uncertain at the time of admission, he is isolated until all questions of doubt are cleared up by subsequent examinations during an observation period.

So far as is possible, two or three children who have never had measles are not placed in the same cubicle. The aim is to have but one child who has not had measles in a cubicle with children who have previously had measles. Should this one develop measles a few days after admittance, no harm will come to the other occupants of the cubicle. Moreover, if the measles patient is isolated sufficiently early—two or three days before the rash appears—crossed infections may be prevented. All measles cases are isolated on the top floor, as a current of air is capable of carrying the contagion of measles upward from one floor to another.

The principles of aseptic nursing are also carried out. This plan is well understood and will not be discussed here. However, it may be emphasized that the hands are one of the greatest agencies in the conveyance of contagious diseases and require a thorough cleansing after every handling of the patient, or, of any contaminated article.

As in the case of other contagious disease hospitals, family physicians are not permitted to treat their patients after they send them here. It is assumed that the patient is sent to a specialized hospital for the purpose of receiving expert care. Likewise, it is reasonable to suppose that a hospital staff which is treating hundreds of contagious disease cases daily is better qualified to care for the patient than the average family physician who may, through a lack of knowledge of medical asepsis and hospital technique, become the source of crossed infections and of disorganization in the hospital routine.

Some new rules have recently been put in force at the hospital which may possibly meet with criticism at first. Among them is one which prohibits the sending of toys, books, food, or packages of any description to patients. This may seem a little harsh, but there are good reasons for excluding every item mentioned. Crossed infections are often introduced by toys or books, and diseases are transmitted by them in the hospital from one patient to another.

The city provides every article for the diet which the patient should have, and all food is of the very best quality. The hospital cannot be responsible for the outcome of cases which are receiving food from without the institution. In

the matter of toys, in addition to the principal objections already enumerated, there is another factor: While the gift of a plaything to one child may afford amusement and shorten the hours, it may fill with longing and make unhappy other children who are not so fortunate in their parentage or friends. So, from this viewpoint alone, the general average of contentment, as well as of safety, is highest when all patients are treated alike—no favors and gifts for some, with discontent and envy for others. In addition, it must be rememmbered that about 85 per cent of the patients in this institution are acutely ill and are in no condition to be amused. And, finally, it should be borne in mind that, while every effort is put forth to make the patients as comfortable and as happy as possible, still the primary objects for which the patients are in the hospital are the treatment of disease and the recovery of health. Consequently, the enforcing of any measure is justifiable which will increase efficiency in gaining these objects.

### FACE MASKS

Past experience in the hospital seems to show that the general wearing of face masks by all employees plays a very small part, if any, in the control of crossed infections. It is true, face masks may serve to keep the fingers out of the nose or mouth and thus prevent infection, but for those who know no better, a contagious disease hospital is a poor place of employment. Face masks may be of value, however, when taking cultures, feeding patients, or doing any work in close proximity to the patient's face.

### RECORDS OF CROSSED INFECTIONS

In order to keep a close check on crossed infections at the Municipal Contagious Disease Hospital and to place responsibility for their occurrence, a blank form has recently been devised by the medical superintendent. This form consists of a pink slip of paper and calls for the following information: name of patient; disease for which admitted to the hospital; date of admission; disease contracted in hospital with date; name of resident physician making diagnosis of crossed infection; name of hospital physician confirming same; and name of head floor-nurse and floor. The clinical record also shows the name of the physician who originally admitted the case to the hospital. A supply of the blank forms referred to is kept in the desk of the head nurse on each floor. As soon as a crossed infection is reported, one of these forms is filled in and sent at once to the office of the medical superintendent. The medical superintendent immediately makes a personal investigation of the case. He satisfies himself as to the diagnosis and undertakes to place responsibility for the occurrence. He also gives any necessary instructions regarding the procedure to be adopted in checking a spread of the disease.

The crossed infection report spoken of is kept on file by the medical superintendent for future reference. If it is found that crossed infections are notably frequent on a given floor or that they occur among the cases of some particular head nurse in charge, it is at once apparent there is a lack of precaution or a flaw in the nursing technique. Thereupon, steps are taken to correct the defects found. Also, if it is shown that many crossed infections occur among patients admitted by a particular physician, a clew is presented and an endeavor is made to ferret out the trouble and eliminate it.

Everlasting vigilance is necessary in holding down the number of crossed infections in a contagious disease hospital. This is one instance at least where it is an error to wait for trouble. It is imperative to look for trouble, to seek trouble at all times in order that trouble may be checked before it can gain any great headway.

### NUMBER OF CROSSED INFECTIONS

The number and per cent of crossed infections occurring at the Municipal Contagious Disease Hospital are shown in the following table[1]:

CROSSED INFECTIONS AT MUNICIPAL CONTAGIOUS DISEASE HOSPITAL (1917-1918)

| | 1917 | Percentage | 1918 | Percentage | Total |
|---|---|---|---|---|---|
| Chickenpox | 104 | 4.3 | 33 | 1.2 | 137 |
| Measles | 64 | 2.7 | 45 | 1.7 | 109 |
| Scarlet fever | 14 | .6 | 11 | .4 | 25 |
| Whooping cough | 15 | .6 | 1 | .04 | 16 |
| Diphtheria | 115 | 4.8 | 2 | .05 | 117 |
| Mumps | 7 | .3 | 0 | 0 | 7 |
| Erysipelas | 1 | .04 | 1 | .04 | 2 |
| German measles | 11 | .4 | 4 | .1 | 15 |
| Total | 331 | ... | 97 | ... | 428 |

In the study of these figures it should be borne in mind that the hospital was opened on January 1, 1917, as a scarlet fever hospital. Only convalescent cases of diphtheria were received at this institution until March 17, 1917, at which time the old contagious disease hospital was closed to diphtheria patients. Since then diphtheria cases have also been cared for at the new hospital.

### SUMMARY

The following is a résumé of the essential conditions found necessary to minimize crossed infections in a general contagious disease hospital:

1. The hospital should be of modern construction.

2. The staff should be well organized, the resident physicians competent, and the nurses intelligent and well trained.

1. During the first eight months of 1919 among 2,518 patients treated at this hospital there were but 12 crossed infections. Of the latter, 9 were measles, 2 scarlet fever, and 1 chickenpox. This gives a crossed infection rate of less than .5 of 1 per cent.

3. Separate receiving rooms should be provided for different diseases.

4. Careful examinations should be made on admission and secondary diseases detected.

5. All doubtful cases should be isolated for observation and subsequent examinations.

6. Prophylactic dose of antitoxin should be given to any patient admitted with a positive diphtheria culture, but no clinical symptoms of the disease, without waiting for a Schick reaction. The only possible exception should be a known chronic "carrier."

7. All cases of scarlet fever with profuse nasal discharges or membranes of any character should be regarded as complicated by diphtheria until otherwise proven.

8. A number of children who have never had measles or chickenpox should not be placed in the same room or cubicle.

9. Measles or chickenpox should be isolated on the top floor of the hospital, if possible.

10. All contacts in case of measles or chickenpox should be isolated. In regard to the former, all susceptible patients in the hospital should be watched for the appearance of Koplik spots until twenty-one days after the development of the last case.

11. Books, toys, food, or packages of any description from outside the hospital should be excluded.

12. All persons not directly connected with the hospital should be excluded from patients. Only in the direst emergency may parents be admitted. (This does not refer to the visitors' aisle.)

13. Physicians and attendants should wash their hands with soap and running water whenever contaminated, which means whenever the patient or anything which has been in contact with a patient is handled. Also they should change gowns after coming in close contact with one class of cases before coming into contact with another class.

14. A check-up blank should be used for reporting each crossed infection to the medical superintendent.

15. The principles of medical asepsis should be carried out in connection with all of the above. These include a separate set of utensils for each patient, such as bed pan, wash basin, towel, and cup.

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## SURGEON GENERAL MERRITTE W. IRELAND HONORED BY ROYAL COLLEGE OF SURGEONS OF EDINBURGH

An honorary fellowship has been conferred upon Major General Merritte W. Ireland, Surgeon General of the United States Army, by the Royal College of Surgeons of Edinburgh, Scotland. This honor, which is paid to but one representative of each group of medical forces of the British Empire and its Allies, is the last of many which have come to this noted American surgeon whose biography is principally a list of achievements.

Merritte W. Ireland was born at Columbia City, Ind., May 31, 1867, and is now in his 53rd year. He was graduated from the Detroit College of Medicine in 1890, his graduation being followed by an internship in St. Mary's Hospital, Detroit. He is also a graduate of Jefferson Medical College, Philadelphia. In 1891 he entered the service as first lieutenant and assistant surgeon. During the Spanish-American War, he served with the Fifth Army Corps in Cuba, and later at Camp Wyckoff, N. Y. In 1899, he was promoted to surgeon with the rank of major of the Forty-fifth U. S. Infantry. Shortly afterward, he went to the Philippine Islands. In 1900 he was honorably discharged from volunteer service. Two years later he entered the office of the Surgeon General and in 1903 was promoted to major and surgeon. He became lieutenant-colonel in 1911. The next year he was returned to the Philippines. Three years ago he returned to the United States and was put in charge of the base hospital at Fort Sam Houston, Texas. He accompanied General Pershing to Mexico as surgeon of the expeditionary forces. When General Pershing went to France he accompanied him as chief surgeon of the American Expeditionary Forces. The rank of brigadier general was conferred upon him in May, 1918. In October of the same year he was promoted to Surgeon General in the Expeditionary Forces with the rank of Major General.

Maj. Gen. MERRITTE W. IRELAND. Surgeon General, M.C., U.S.A.

The MODERN HOSPITAL

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Contributors, subscribers, and readers will find important information on advertising page 42.

## From a Standpoint of Business

The very sick patient, admitted to the hospital, is physically a bankrupt. His bodily liabilities exceed his assets. He goes into the receiver's hands.

The hospital, as the receiver, takes an account of stock, conserves the assets, and liquidates as far as it can the liabilities. Then the insolvent body becomes solvent and the patient is discharged.

Most hospitals stop here, considering their receivership performed. But if the hospital is to act as a good receiver, it will discharge the patient with some sound advice. It will enlighten him as to the dangers of speculative physical investments. It will insist that if the patient is to remain solvent, he must know how to invest his health and how to build up a reserve for time of need. It will make clear that good food is a paying investment, that adequate rest and exercise are good business. The hospital, as receiver, will demand that the bankrupt buy insurance in terms of recreation, and that he obtain an annual certified audit of his stock of health from a competent physician.

The institution that teaches the principles of business as applied to health is in an excellent position to go to the business interests of a community and say "Our business is allied to your business. Your profits are dollars while ours are healthy people. There is a ratio between the two in this community. We help you and we ask you to help us."

## Montreal and the Next Annual Convention

It is with a very special satisfaction and pleasure that Montreal anticipates the visit of the American Hospital Association next fall. Historically and professionally the city has always been in the forefront of medical progress.

Montreal has now well over six hundred thousand inhabitants and is one of the most beautifully situated cities of the Empire. Ever since its foundation in 1642, it has been devoted to medical philanthrophy, for it was in that year that the celebrated Jeanne Mance[1] arrived with the founder of the city to take charge of the community of nuns who accompanied the earliest settlers of the country. The Hotel Dieu, the oldest hospital in America, and now one of the greatest Catholic hospitals in Canada, was founded by her. From these beginnings the city has advanced in its medical interests to such an extent that there are now many public hospitals which will bear favorable comparison with any on the Continent.

Apart from the Royal Victoria and Montreal General Hospitals, there has been founded in the last decade a large hospital for infectious diseases, and a magnificent new French Catholic hospital is in course of erection. It is largely due to the philanthropic citizens of Montreal that these institutions have been brought up to their present state of efficiency.

The McGill Medical Faculty, with its magnificent new buildings, will be of interest to all visitors, and its very modern laboratories and Department of Experimental Medicine, will attract no less attention.

Indeed, Montreal to-day is the chief medical educational center of the Dominion.

To the American visitor, the city is always a source of great attraction. As is well known, it is a seaport town with an enormous volume of shipping and traffic. It is the terminus of the most important railways in the country. It is full of historical interest, and the sight-seer will find both historical and scenic attractions which in themselves will well repay a visit. It is my intention later on to mention in detail such advice and direction as may be of help to prospective visitors in finding more easily all such opportunities for pleasure and profit as will be worthy of note.

It is particularly fortunate that the meeting

[1] The story of Jeanne Mance and the founding of Hotel Dieu was published in THE MODERN HOSPITAL, Vol. XIII, 4 (Oct., 1919), p. 296

is to be held in the month of September, inasmuch as during that month the weather is at its best, the opportunities for amusement by water and on land are especially attractive, and local excursions, the many interesting golf courses, and other forms of entertainment, are available for visitors as at no other time of the year.

H. E. WEBSTER.

### A Training Course for Hospital Executives

One of the papers which was heard with unusual interest at the recent annual conference of the American Hospital Association at Cincinnati was that of Dr. A. C. Bachmeyer on "A Training Course for Hospital Executives." The keen interest it stimulated was not due to the fact that it dealt with a new line of thought, for the subject has been discussed from time to time by various individuals and organizations alive to the need of such a course, but rather that it presented the basic elements of a well thought out plan under which a municipal university and a municipal hospital will cooperate in the training of hospital executives, the university furnishing instruction in theory, and the hospital, in cooperation with other hospitals located in Cincinnati and elsewhere, providing instruction in the practical aspects of hospital management.

Other hospitals have been conducting courses in hospital administration for some time, notably the Massachusetts General Hospital of Boston, Bellevue Hospital of New York, the Presbyterian Hospital of Chicago, and Grace Hospital of Detroit. With a few exceptions, however, these courses have been pursued by women—usually graduate nurses—seeking preparation for executive positions in small institutions and, accordingly, have not always attempted to give training in the diverse problems which the executives of the larger hospitals are called upon to face. It is also true that isolated courses of lectures in hospital administration have been and are being given by experts. But to Doctor Bachmeyer must be given the credit for establishing in a university a department of hospital administration which, through close cooperation with a large municipal hospital, offers to men and women seeking to qualify themselves for responsible positions a comprehensive course of training, both in the theory and in the practice of hospital administration.

Such a course, it should be pointed out, has its distinct limitations, and the men back of this project, we are gratified to observe, are not laboring under any illusions as to just what it will accomplish.

"The University of Cincinnati," says Doctor Bachmeyer, "in organizing its facilities for this type of training, realizes that one year of intensive instruction, as contemplated, will not produce a group of mature hospital executives. We believe, as Emerson has said, that, 'colleges have their indispensable office—to teach elements.' This course is intended to teach, so far as possible, the elements of hospital administration, to give the student an insight into the problems and diverse aspects of institutional management, and to enable him to give an 'ideal worth' to his work."

A hospital is such a complex institution, and its administration, even on a small scale, calls for such a diversity of knowledge and ability that only years of experience can bring a commanding grasp of its management. But the course at the University of Cincinnati should place its graduates on speaking terms with the executive duties of the hospital superintendent and ground them well in fundamentals.

### Is the Traditional Medical Course Indispensable for Successful Hospital Administration?

In announcing the establishment of a division of hospital administration in the Department of Industrial Medicine and Public Health in the University of Cincinnati's College of Medicine, Doctor Bachmeyer says that administrative positions in hospitals, such as those of hospital managers and hospital superintendents, are rightfully within the scope of the activities of the physician. "Rightfully," yes, but not wholly, as he himself concedes in a later paragraph when he says, "In view of the fact that non-medical executives and nurses are proving successful managers of hospitals, these courses of instruction will not be confined to physicians, but will be available to all persons whose individual qualifications are approved by the director and whose preliminary education will permit them to matriculate in the university."

Doctor Bachmeyer frankly admits that there are two sides to the question of whether the traditional four years of medical training are an indispensable qualification of a successful hospital superintendent in a large institution.

If it should be concluded that this course is not essential, and, as a result, non-medical men and nurses properly qualified by preliminary training in the sciences take the hospital administration course in increasing numbers, will it not be incumbent on the University of Cincinnati, through its medical college, to add to the course as at present outlined a wide range of subjects dis-

tinctly medical in character, which will give to the non-medical student those elements of medicine rightly regarded as essential to successful hospital administration?

After all, are not the duties which the hospital superintendent is called upon to perform largely administrative in character? While a thorough knowledge of medicine such as that afforded by the traditional four-year course is desirable, is it essential?

Would not a year's intensive study of the broad essentials of medicine similar in purpose to the year's intensive study of the essentials of hospital and business administration which Doctor Bachmeyer has inaugurated, suffice? We raise the question and throw the columns of the magazine open for discussion. Our readers are warmly invited to submit their opinions on this important topic.

## No Personal Interviews, Please!

MAURICE BLUMENTHAL
32 EAST TWENTY-THIRD STREET
*Room 402*
NEW YORK CITY

September 20, 1919.

MR. W. L. BABCOCK,
SUPT., GRACE HOSPITAL,
DETROIT, MICH.

*Dear Sir*:

A gentleman of considerable wealth, who has devoted a liberal portion of his income to philanthropies along religious and educational lines, has decided to devote more attention to substantial philanthropy of local nature, as owing to the war having taken large sums for overseas and training camp activities as well as hospital development, local hospitals have suffered to a considerable degree due to the curtailment of local contributions.

A committee of experienced men will have charge of the distribution of whatever sums may be devoted to local Hospitals, and as they have manifested an interest in the requirements of Hospitals in your city and state, an information blank has been prepared whereon institutions desiring aid from this source may detail their requirements, as well as furnishing such other data the Committee deems essential to arriving at an estimate of what financial support your institution may need as well as learning what institutions are in the greatest need of help.

While the gentleman is desirous of aiding to the maximum of the institutions' needs and his own ability, he feels a policy should be established of institutions endeavoring to secure as much support as possible from local philanthropy, which added to what he might give would provide for such charitable work as the requirements of the community demand.

For institutions having a large outstanding debt, either mortgage or floating, it might be a measure of safety as well as efficiency to try and raise this debt through a campaign for local support as well as any donation which the Committee might decide to give.

Will you, therefore, indicate on the enclosed information blank whether or not your institution needs funds to continue its charitable work, and whether or not you will be able to raise locally sufficient funds to add to whatever donation may be decided upon by the Committee, to provide for a future period of charitable wants, as well as raising any outstanding debt, and if in your opinion such a debt could be raised locally provided a substantial sum was obtained from outside sources to help.

Awaiting your reply, I am,

Very truly yours,

M. BLUMENTHAL,
Secretary.

P. S. Unless advised by the Committee, please do not expect personal interviews, as all decisions will rest upon the detailed information contained in the information blank, which you are expected to fill out should you wish financial support for your institution.

At last some hospitals are to have their burden of debt lifted. So we are led to believe by Mr. Maurice Blumenthal, whose letter we publish in full in the adjoining column. Of course, there is no question about the good faith of Mr. Blumenthal or about the purity of his altruism. Undoubtedly he has the interests of the hospitals of this country solely at heart and is anxious that they should take full advantage of the kindly beneficence of his generous client. That his client wishes to remain *incognito*—what difference does that make? Is it not sufficient to know that he is a man of "considerable" wealth and has heretofore devoted a "liberal" portion of his income to philanthropy of a religious and educational character? Why itch after more knowledge before you return the information blank, indicating whether your institution needs funds to continue its charitable work?

That your hospital will receive help, if it deserves it and shows ability to raise an adequate amount of money, is sufficiently vouched for by the fact that a committee of experienced men (unnamed, let it be noted) will have charge of the distribution of whatever moneys may be devoted to local hospitals. In this attempt to raise funds Mr. Blumenthal is presumably prepared to help—for a consideration, dare we guess?

It may be betraying too great a curiosity, but, after reading Mr. Blumenthal's letter, we assuredly cannot be blamed for wanting to know why this unnamed committee of experienced men has gone so far afield as Detroit, Mich.? It is true beyond peradventure of a doubt that "local" hospitals have suffered to a marked degree by the curtailment of "local" contributions. But this is as true of the "local" New York hospitals as it is of any other "local" hospitals and we timidly venture to ask whether it would not be wise for Mr. Blumenthal to use his unquestioned persuasive powers in urging the gentlemen of the committee of which he is the secretary to confine their interest to the hospitals of the city in which their secretary has his desk room?

We were, moreover, curious to know more about Mr. Blumenthal and his generous client. We, therefore, took the trouble to look him up. We found, however, that his name does not appear in the New York directory at the address he gives. This we thought was perhaps due to his having moved in only recently. But we found that his name did not appear even on the building index board. We did find out that with thirty-eight other men he occupies desk room on one of the floors of the building and his mail is received for him by the man who runs the cigar store on the main floor. Well, perhaps, he is the *bona fide* representative of a man of "considerable" wealth, but we cannot help wondering if that gentleman is not Mr. Blumenthal himself.

Meanwhile may we remind our readers to be constantly on their guard and under no circumstances give out statistics and other important data except to properly accredited representatives of organizations and state agencies which have a legitimate right to ask for them.

## The Rural Community and the Rural Hospital

On page 374 of this issue there appears the first of a brief series of articles under the general title of "Some Rural Communities and What Their Hospitals Mean to Them," by Miss Mary Katherine Chapin. These papers, based on ideas and plans which Miss Chapin is working out, are intended to serve as an introduction to a more thorough and comprehensive study of this pressing problem—a study which, without doubt, must soon be made if any intelligent, thorough-going program for the improvement of health conditions in our rural communities is to be formulated.

That this is an important and timely subject for discussion none will deny. Farming shares with the steel industry the honor of being a basic industry, and everything that is done to maintain —and, where necessary, to restore—the health of the farmer and those socially and economically related to him makes for increased productivity and general well-being. The rural hospital, correctly conceived, properly organized, and efficiently administered, should occupy an important place in rural economy.

The idea with which this study begins is that the first thing to ask of any hospital is not whether it conforms to this or that specific requirement, but whether, in view of the sum of its services to the community, it deserves to exist. Would the community be better off with or without it? Now, it is possible—at least, it may be conceded for the sake of the argument—that a benevolent despot, armed with a suitable questionnaire and a score card, might improve hospital conditions in our large cities by wiping out of existence every hospital in them which did not score up to a certain percentage of excellence. The former patients in these inferior hospitals would benefit rather than suffer, for they would simply be taken care of in the better hospitals, which would enlarge their facilities to meet the increased demand. The case is different, however, in the country. Many a rural hospital which would score extremely low, and which measures up even to that low standard only with difficulty and against heavy odds, is yet indispensable to the well-being of its community. Such hospitals need, not to be castigated or suppressed, but to be helped. Before they can be helped, however, they must be understood, which implies that the facts about rural communities and their hospitals must be better known than they have been hitherto. The place to begin studying the rural hospital, as intimated in the first paper of the series, is in the community which it serves. Such special study of rural hospitals is doubly necessary if it should prove that, as Miss Chapin has surmised in a series of editorials which appeared in this magazine earlier this year,[2] the rural hospital really has a field of its own and a function distinct in many ways from that of the urban hospital.

The papers in the present series will be largely introductory in character, and it is hoped that from this cursory examination of the problem a scheme for a more thorough-going and comprehensive study may be evolved.

## Some Practical Measures of Death Prevention

So far as we are aware there are no figures covering the country as a whole relative to the number of fatalities in hospitals and sanitariums caused by patients falling or jumping from windows. Some conception of the frequency of this occurrence may be gained through a consideration of the experience of Cook County, Illinois, as related by Dr. Edward H. Hatton.[3]

The records of the coroner of Cook County show that during a period of twelve years extending from January, 1907, to December, 1918, 49 such deaths occurred in 31 different hospitals. Eight of the hospitals had 2 such deaths, two had 3, and one of the largest hospitals of the group had 7, showing that the initial death in many

2. "What Is the Matter With the Rural Hospital?" THE MODERN HOSPITAL, Vol. XII (April, 1919); "Once More the Rural Hospital," THE MODERN HOSPITAL, Vol. XII (May, 1919); "The Growth of the Hospital Idea," THE MODERN HOSPITAL, Vol. XIII (August, 1919).

3. "Fatalities in Hospitals Caused by Patients Jumping from Windows: From the Records of the Coroner's Office, Cook County, Illinois," Jour. Amer. Med. Assn., Vol. 73, p. 604.

instances did not for one reason or another prevent repetition.

The figures gathered by Doctor Hatton also show that in Cook County there was a noticeable tendency for the number of such deaths to increase in the closing years of this period. He attributes this tendency partly to the increase in the size of the hospitals and the number of used beds, and partly to the decrease in the number of interns, nurses, and attendants, combined with the inefficiency resulting from war activties.

Those of our readers who are interested in the conditions that prevailed when the fatalities took place, the time they occurred, and the type of patients concerned will do well to read Doctor Hatton's article. We are primarily interested in bringing to their attention Doctor Hatton's conclusions. From the facts adduced in his article he concludes that:

"1. A concerted effort should be made toward designing a standard hospital window and screen which would absolutely prevent such accidents and yet be satisfactory from the mechanical standpoint, as regards convenience in washing, use of fire escape, ventilation, and lighting.

"2. Nurses and attendants, especially those on duty during the afternoon and the first half of the night, should be continually warned of the possibility of such accidents occurring and should be prepared to act quickly and wisely in emergencies.

"3. Every toilet room used by patients should be protected by bars or gratings across the windows.

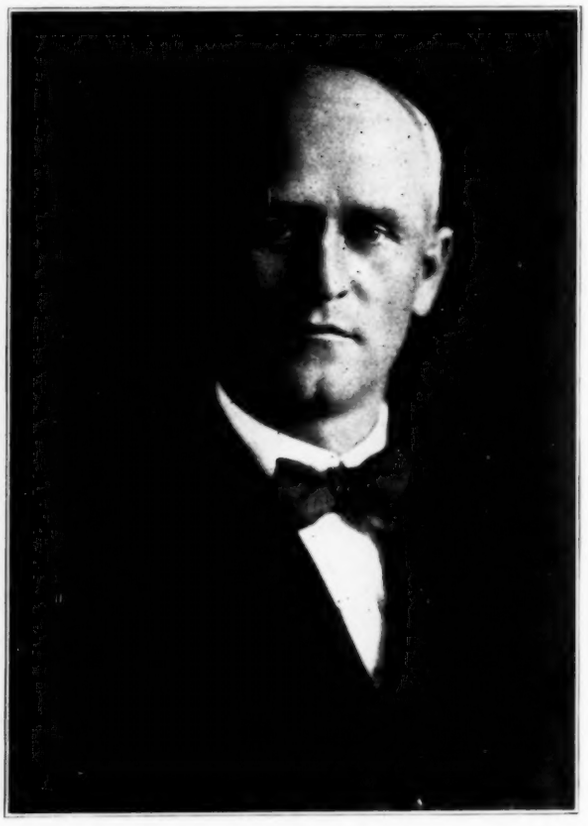
"4. Special precautions should be taken not only in regard to those who are actually delirious but also in regard to others who from the nature of their sickness may become delirious.

"5. With regard to foreigners as patients an effort should be made to have with them, from time to time, regular attendants,—or at least others—who speak their language."

The second and fourth suggestions merely emphasize the necessity of forethought. They involve no additional outlay or expense; yet they may be vitally instrumental in the actual saving of human life. Hospitals in which fatalities occur through sheer carelessness are justly reprehensible for the loss of life occasioned by their thoughtless negligence.

Likewise, the third suggestion, small in the amount of expense its adoption may occasion, looms large indeed when interpreted in the figures of deaths prevented.

## A. R. Warner Chosen Executive Secretary of American Hospital Association



DR. A. R. WARNER.

DR. ANDREW ROBERT WARNER, for a number of years superintendent of Lakeside Hospital, Cleveland, Ohio, was appointed executive secretary of the American Hospital Association at a meeting of the Association Board of Trustees held in New York, October 10, 1919, succeeding Mr. Howell Wright, who for more than a year has been acting as temporary executive secretary. Doctor Warner begins his new duties November 1.

The announcement of Doctor Warner's appointment is a matter for congratulation among his many friends. His activity in hospital matters generally has won for him a nation-wide acquaintanceship among hospital executives and physicians, and recognition of his ability is evidenced by the number of responsible positions he has been called upon to fill.

Doctor Warner was born at Mentor, Ohio, in 1875. He secured his medical education at the Western Reserve University School of Medicine, graduating in 1906. He has been president of the Ohio Hospital Association, and last year was president of the American Hospital Association. He is a Fellow of the American Medical Association and recently was elected first vice-president of the American Conference on Hospital Service. He is especially interested in hospital standardization and the group practice of medicine, and a number of his articles on these subjects have been published.

While the fifth recommendation may be difficult of execution, yet at least a conscientious effort should be made to carry it out.

The first suggestion is imperative, and progressive hospital architects, practical builders, superintendents, and inventors should turn their attention at once to the designing of such a standard window and screen.

While it is to the final achievement in this point of hospital construction that we must look as the greatest preventative of these deaths, administrators will do well to spare no pains in the adoption of every practical measure of prevention.

### A Criticism and a Reply

An interesting point in connection with the architectural study of the State Tuberculosis Hospital at Wallum Lake, R. I., as presented by the superintendent, Dr. Henry Lee Barnes, on page 371, is the fact that the screens between the beds (used when bathing patients or giving them other attention) were built in before the structure was plastered by bolting part of the fixture to the gypsum block partitions. When not needed, these screens swing back against the wall. In the opinion of the superintendent they are much cheaper and more securely fastened to the wall than any manufacturer's fixture applied over the plaster.

A sound criticism of the plans of this hospital was deemed worthy of being quoted entire, and we believe that the various points brought forth by the critic whose article appears on page 424 of this issue, will well repay study.

The arguments did not, however, remain unanswered. In his reply, which follows the criticism, Dr. Barnes meets the several criticisms clearly and concisely. After having presented an admirable defense, he adds a number of his own criticisms which embody the result of his experience with the building. We believe that our readers will find the entire series—the original article, the criticism, and the reply—of especial value and interest.

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Many people who are complaining of not getting a square deal would complain a good deal more if they got it.

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There are two things I never worry about—those things I can't help, and those I can—Robley D. Evans.

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#### One Point of View

An old and dusky daughter of the South, to whom things present themselves in terms of her profession, describes a Red Cross parade in which the canteeners and surgical dressings workers marched in all their white glory:

"Lawsee, Miss Anna, it cert'nly was a gran' spectacle! Nevah in all ma life did I see so much washin' at one time!"

### FREE DENTAL CLINICS FOR RURAL SCHOOLS

#### North Carolina Pioneer in Movement for Traveling Dental Service—Educational and Prophylactic Side of Question Emphasized

North Carolina was the pioneer state in appropriating money from the public school funds to be used by the state board of health in the examination and for the dental treatment of children in the rural schools. Practically every state in the Union provides free examination for school children, but until this forward step was taken in 1917, little of a specific nature had been done to remedy defects found.

A bureau, charged with the responsibility of executing the law, immediately formulated plans for a systematic remedying of conditions. When it became known that 80 per cent of the school children of the state needed dental treatment, that defect was the first one to receive consideration.

The opinion that treatment for a physical defect should be as free to a school child as the school itself resulted in making the clinics free to every child between the ages of six and twelve years, with no distinction as to race, sex, color, class, or financial standing.

"As there was no precedent pertaining to the solution of the rural problem, we found," said George M. Cooper, M.D., director, department of medical inspection of schools, Raleigh, writing on the subject in *Modern Medicine*, "that we were embarking on an uncharted sea. However, the results have a thousand times more than justified the adventure. This kind of work has come to North Carolina to stay. For the benefit of those interested in the details of our methods, the following summary is submitted:

"Six dentists who had been recently graduated and licensed to practice in the state, all young men of high type, were selected to do the work. A campaign running from four weeks to three months in each of nine counties in the state was planned. Each man was supplied with a McConnell folding chair, a foot engine, a student's cabinet, a few simple drugs like novocain, tincture of iodin, oil of cloves, a full equipment of instruments such as excavators, elevators, burrs, brushes with pumice, with dental alloys, and the necessary material for the simpler fillings. Each one was placed in an automobile and taken from place to place over the county, the children being summoned by local agencies. The work was done for children between the age of six and twelve years only. No synthetic or gold fillings were undertaken, no crown or bridge work done; diseased pulps received only temporary treatment, and root canals were not treated. The work consisted mainly in placing amalgam fillings for the six-year molars, and other permanent back teeth, some temporary fillings, silver nitrate treatment, etc., cleaning and extracting when necessary. The educational and prophylactic side of the question was stressed at all times as the most important. The work, ending early in December, resulted in the treatment of nearly seven thousand children in the nine counties. More than 227 dispensaries were held, and over 100 lectures on oral hygiene made.

"Three dentists have been employed nearly all the time since the first of January. Beginning with August 1, this force was increased to nine, but as we always prefer to talk about something after it has been done, the result of this year's work will suffice for another story. Naturally, in a state with 800,000 school children, more than three-fourths of them needing dental treatment, it is unthinkable that a very large percentage could be reached by nine dentists working all the time, but when the propaganda is spread all over the state and the people have preached in these and other homes in every section knowledge concerning the importance of the care of the teeth, and the fact that the state is sufficiently interested to put up thousands of dollars a year in the effort to supply this care, he is a pessimist indeed who can not see that the result of the work will have an enormous influence upon the health of the children of this and succeeding generations."

## A FEW BRIGHT ONES FROM PROBATIONERS

### Blunders of Younger Members Cause Superiors to Seek Psychopathic Ward—Even Most Brilliant Have Moments of Temporary Aberration

Every hospital training school is due to have enter about every so often at least one brilliant idiot, and even those who turn out to be the brightest nurses do and say absurd things when they first find themselves in the new environment of hospital life. Here are a few things that really happened and we shall be glad to have more of these stories illustrative of the humor that creeps into the dark days of probationary training.

Head nurse to probationer: "Please go to the operating room and get me some T binders."

Probationer: "Yes mam, but which kind of tea shall I use, green or black?"

A young nurse was told to give to a patient a tablespoonful of effervescent sodium phosphate. She obeyed orders to the letter, giving the patient the dry crystals and following up the dose with a glass of water. The patient frothed furiously at the mouth, and both patient and nurse were scared into hysterics.

The crotchety surgeon entered the ward at meal time and found only a probationer on duty. In a great hurry to adjust a dressing but unable to find any instruments, he yelled at the only one present that looked like a nurse, "Where's the probe? Fetch me a probe!" The poor little probationer, anxious to please, answered, "Won't I do sir?"

In one of its big charity wards a certain hospital had a demented old Dutch woman who had the habit of hiding things in her bed, and it was not uncommon to find table silver, meat, and vegetables or almost anything in the way of institution supplies under her pillow. She had been operated for cholecystitis and was on the way to recovery, all drainage having been removed, but the wound was still partly open. One morning a new probationer, who had overheard someone say that the wound must be kept open, found the cork of a grape juice bottle under the old lady's pillow and very carefully inserted the cork into the partly open wound. Strange to say, no sepsis followed her experiment. The old lady made a good recovery and still lives to torment her family.

An almost hopeless probationer was wished on a very good training school by one of its chief surgeons. Her speech was geared to about one-third the speed of that of most any other human being and she moved and worked at the same rate. The diet kitchen nurse, to whom she was at first assigned, begged the superintendent to take her away, saying that she herself would be driven to the psychopathic ward watching Miss A butter the toast in one direction with sober, serious, gridiron strokes and then repeat the whole process in a direction at right angles to the initial performance. She averaged about three full minutes to each piece of toast. So the poor little seeker after a profession was sent to the operating room, where her efforts were but little more successful. One day she heard the supervisor say, "I believe I have left the cold water tap from the sterilizer jacket running." Whereupon she arose and said, "yes mam, shall I stuff something in it?"

Another day with an inimitable drawl to which no words could do justice this same probationer popped the following question at the unsuspecting supervisor: "Mrs. —— has had pneumonia and the little baby she has with her is to be taken to the obstetrical ward. What will they do to keep the baby from carrying infection over there?" Just for fun the head nurse answered: "They will put it in the sterilizer and boil it for half an hour." Shocked beyond measure, the little probationer gasped in tones of deepest pity, "Oh the poor little thing—I'm afraid it'll die!"

Another probationer, who seemed to have considerable difficulty in getting the assignments to percolate through her gray matter, perpetrated the following: The instructor had repeatedly impressed upon the class the necessity of cleaning a room thoroughly after it had been occupied by a patient with a communicable disease. When called upon to recite the student in question managed to remember something about fumigation and disinfection, but always forgot to include the fact that all things which could be so cleaned must be thoroughly washed with soap and water. One day, fairly in desperation, the instructor burst forth with, "Miss A—please remember that cleanliness is next to godliness and that the real cleaning must be done with soap, water and elbow grease." In the final written examination, this is the answer to the original question that Miss A wrote. "Cleanliness is more than godliness and the first thing to do to a room which has been occupied by a patient with a catching disease is to go after it—using soap, water, and axle grease."

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This is the type of ambulance airplane used by France for French African service. The four-wheeled under-carriage affords additional safety for the airplane as it lands with its sick or wounded.

St. Thomas's Hospital facing river along entire front.

## ST. THOMAS'S HOSPITAL, LONDON

**First of British Hospitals Planned in Accordance with Modern Ideas—Date of Original Foundation Obscure —Present Site Exceptionally Well-Suited to Character of Institution**

St. Thomas's Hospital, London, was one of the first British hospitals to be built in accordance with modern ideas. The foundation stone of the present buildings was laid by Queen Victoria in 1868 and the hospital was opened in 1871. The cost was £600,000.

The buildings are 1,710 feet long and consist of a series of blocks separate from each other, but connected by corridors open to air on all sides. Between the blocks are grassy quadrangles, and along the entire front is a broad terrace overlooking the river. Six of the blocks are devoted to the use of patients; one includes the treasurer's residence and St. Thomas's Home for paying patients, and one constitutes the medical school.

About one-third of the beds are given over to medical, and the remainder to surgical cases. There are separate wards for the treatment of special classes of diseases, one being an isolation ward for infectious diseases, including tuberculosis of the lungs. Each bed is allowed 1,800 cubic feet of space, and in the infectious wards, 2,500. In recent years, alterations have added a number of beds and a nurses' home; the out-patient department has been rearranged; the laboratories have been extended; and the scope of the Roentgen Ray Department has been widened.

It has been well said that the record of St. Thomas's Hospital from the earliest times to the present day, is an epitome of the rise and progress of medical science in England. Its existence may be traced back through eight long centuries, and its history is linked with many ancient traditions.

The exact date of the original foundation of St. Thomas's is shrouded in the mists of antiquity; but since it was dedicated to St. Thomas à Becket, who was canonized in 1172, and as the first building was destroyed by fire in 1207, the origin is fixed between the two dates. At one time, it was known as St. Thomas à Becket's Spittal. It was reendowed and a new charter granted in 1553 under Edward VI, and the dedication transferred to St. Thomas the Apostle.

In 1693 the hospital was rebuilt, and in 1707, Thomas Guy, who afterwards founded the hospital that still bears his name, added another wing. Additions were made in the eighteenth and nineteenth centuries, but in the latter half of the last century, the historic pile gave way to the advances of the railway contractors, who for the sum of £300,000 entered into possession of the lands which once had been purchased for £31.

For a few years the work of the hospital and school was carried on at the old Surrey Gardens, in the hall famous as Spurgeon's Tabernacle, but in 1871, the present series of buildings was completed, and formally dedicated by Queen Victoria. The nurses' home is the direct outcome and, until the end of her life, the object of the sedulous care of Florence Nightingale.

The Medical School as an organization, though as old as any other British school of medicine, is yet a product of recent times, but it is only in the last one hundred and fifty years that any records have been found of the school's having required separate buildings. For a time, the two "Borough Hospitals," as they were called—Guy's and St. Thomas's—ran in double harness; but they pulled different ways, and, for many years past, each has drawn its own load with mutual respect and goodwill tempered by a friendly rivalry. St. Thomas's School owes its distinction, not perhaps to any great number of meteoric speculators and dashing experimentalists that it has turned out, but to the conspicuously high average maintained by the physicians, surgeons, and specialists who, in every quarter of the English-speaking world, look back with affectionate regard to their student days at Thomas's.

St. Thomas's is one of the few London hospitals that has no dire need to appeal to the public for funds. It has been richly endowed by pious donors in the past and in the course of centuries the value of some of these endowments has greatly increased. Because, however, of the dwindling of revenues from agricultural lands in recent years, subscriptions have been received and grants allotted by the various charitable funds that exist for the purpose of assisting voluntary hospitals so that it does not subsist merely on the proceeds of its endowments.

The present buildings occupy an imposing position on the south bank of the river, facing the Houses of Parliament, the rear overlooking one of the poorest sections of London. Just beyond the extreme limit of the hospital is Lambeth palace. The site is exceptionally well suited to the character of the institution. It has the wealth of the west, the squalor of the east, with the river on one side, and a public park on the other providing the light and air so necessary to the welfare of the patients.

### Cinema Aid to More Careful Living

The latest Red Cross moving picture, "Winning Her Way," is a film which reveals the vital work of the Red Cross public health nurse in a sleepy little village persistently behind the times.

Beside being rich in beautiful rural scenery and absorbing in plot, the picture gives the observer a clear insight into unhealthful conditions that exist in many small towns today and shows the importance of establishing public health nursing in every community.

The nurse sticks to her job as a teacher of more care-

ful living, despite the opposition of short-sighted villagers who object to "these new-fangled ideas." Championed by the village doctor, she gradually wins her way after her services prove invaluable in a number of emergencies, the climax coming when she saves the life of the daughter of the town "boss," one of her chief opponents. A very beautiful love story also is woven into the thread of the play.

## PLANNING THE HOSPITAL WITH REFERENCE TO FUTURE DEVELOPMENT*

### Present and Possible Needs of Institution With Sufficient Funds for Construction and Maintenance Chief Factors—Original Structures Should Be Built With View to Minimizing Cost of Alterations or Additions

By OLIVER H. BARTINE, Hospital Consultant, New York City.

Not a little has been written upon the subject but, to those intimately connected with the building and operation of hospitals, its importance will be manifest. The beginning of a new hospital is usually one of relatively small things in many ways, but it is never small in comparison with its potential future. The constantly increasing demand for hospital treatment assures the future growth of all hospitals. This potential future is a vitally important factor, whether the hospital under consideration is an altogether new institution, or whether it is the beginning of the development of a substantially new institution on the foundations of an existing hospital. Because of this, the most careful consideration of the possibilities of future development is quite as important as is the study of the present needs and the method of meeting them.

To the end that the best results may be assured, a careful and thorough community survey is essential. This survey should include a comprehensive study of the character of the community, the extent of hospital service required, and the amount of hospital service already available. It should also be ascertained whether general service or service of a special character is most needed. Should the new institution be designed for the treatment of some special disease, the survey may be extended to include a much larger geographical area. Whether the service to be rendered is in the nature of free service, whether it is to be for paying patients, or a combination of both must be considered; and the matter of an outpatients' department, or dispensary, must also be given attention.

The past records of the hospital, if the proposed building or buildings be an addition to an existing hospital, will be a valuable guide in reaching conclusions in regard to these points.

The property available for present enlargement and future growth should also be studied with the greatest care. Especially is a view to the far-distant future essential.

Unless funds sufficient for the construction of the proposed buildings and for the future support of the institution, are already assured, this problem should be carefully worked out. The construction of buildings for which there is no available means of support may disastrously handicap the hospital at its inception and for many years to come.

The process of ascertaining the probable revenue and the operating costs is a simple one, but both the revenue and the operating cost must be borne in mind throughout the period of deliberations. Otherwise, the sorely tried contributing public will be called upon at a later date for money to make good the mistakes of the building committee.

To carry on this survey properly, a committee of the board of trustees should be carefully organized, which may well constitute the building committee. The members should include the hospital superintendent, the supervisor of nurses, the dietitian, the chairman of the medical board, the consultant, the architect, and the consulting engineer and builder, organized in accordance with the method which I have heretofore advocated.[1]

It is not to be expected that the architect can supply the committee with plans, or even indicate the needs of the institution. The committee should confer with him in regard to the building needs, giving him the result of its conclusions based upon the study of the hospital needs of the community over a period of years. This study should include the many possible changes in the future of the community.

Caution should be exercised in analyzing the recommendations of any one individual. Instead, greater regard should be paid to general principles. A wide divergence of views as to the arrangements and equipment of any hospital will be found among different authorities. With the building committee rests the final responsibility. The hospital must be so constructed and equipped that it will adequately meet all demands and prove efficient under all conditions.

The natural law of supply and demand applies to the work, development, and conduct of the hospital, just as it applies to all fields of mercantile and industrial effort, hence maximum care and foresight should be used in planning hospitals and in the selection of their equipment so that they will be capable of future development along fundamental lines provided for in the original survey.

A determination of the requirements to be met in the proposed building or buildings, and of the amount of funds which may be raised, are associated problems which cannot be separated. Only as much building should be undertaken as can be well done with the funds available. On the other hand, sufficient funds should be provided to do as much building as is really needed. Cheaply constructed buildings inevitably involve high cost of operation and maintenance. Therefore, first and foremost the needs of the institution present and future, should be most carefully determined, and plans should be sufficiently developed that all cost of the building or buildings, present and future, may be at least approximated. It must be ascertained, also whether sufficient funds can be procured for the building or buildings proposed. A part of this problem is that of the extent of future buildings needed, and the probability of sufficient funds being found available.

While tentative plans for the entire building or group of buildings should be outlined to determine the probable ultimate cost of construction, operation and maintenance, only the plans for the immediate building need be prepared in complete form; but the tentative sketch plan of the ultimate development is essential in order that the relation of the present buildings to those that will be built in the future may be properly worked out, and in order that the present and future financial problems may be grasped.

Whether it is possible to provide for future growth and development in the plans and construction of the initial

*Read at the Twenty-First Annual Convention of the American Hospital Association, Cincinnati, September 8-12, 1919.

1. "The Building of the Hospital Organization and Methods." Presented before the Hospital Alliance, City of New York, December 1, 1914.

building without materially sacrificing present efficiency or future costs is a question that has arisen. Not only can this be done but if the proper degree of foresight and judgment is used, it can be done so as to secure a minimum per capita cost of maintenance.

The real problem then, resolves itself into how to plan the construction of the first unit or units so that while efficiently serving immediate needs alterations may be made to meet future needs at a minimum cost for changes. The building must be at all times a complete hospital in all its details, but this must be effected without handicapping present service or mortgaging future moneys. A proper proportion of patients and service spaces per unit must at all times be maintained and neither must be sacrificed.

The nearness or remoteness of future extensions will largely influence the decision of the committee many times and will, in some cases, determine whether future expense or present efficiency shall be sacrificed.

Rooms designed for certain future purposes may well be temporarily used for other present needs. A certain degree of present inconvenience or a later serious expense may be involved in decisions made at this time, hence the need of careful study and decisions cautiously reached. The tendency to handicap present service by rooms of inadequate size must be avoided. Especially should needs involving built-in equipment, which may be required in the future, be carefully studied, and all necessary provisions made in the heating, plumbing and electrical installations for the later installation of built-in equipment. Most of the piping involved in these installations is concealed and any changes are expensive.

The relation of present to future construction, in-so-far as it affects floors, exterior walls, supporting partitions, corridor walls, etc., should be studied with such care that these walls will be permanent. Minor partitions may be constructed of plaster or terra cotta blocks in such a way as to involve little cost in their removal or re-location. The greater the extent to which, by careful foresight, such alterations may be eliminated, the better.

Where a new building constitutes the first part of a greater building or the first of a group of buildings, the initial construction must include all the elements of a complete hospital. This constitutes a problem of one nature. Quite a different problem is presented where the proposed building constitutes an extension of an existing building or the beginning of a reconstruction of the entire institution. In such a case it consists in correlating the new construction to the existing building and equipment in a harmonious manner so as to continuously supplement both.

In every case the building, or buildings, must include every necessary element of a complete hospital—administrative department, patients' and service space, and equipment. Some of these departments will, with later additions to the institution, be segregated, and provision should be made for doing this in such a manner as to involve the least disarrangement of present construction. In the arrangement of rooms for future uses so that they may be temporarily used for other present purposes, future patients' rooms may be used for nurses' and doctors' rooms, and even for the help; present operating rooms may be used for future delivery rooms; future locker or storage rooms may be used for heating, other service equipment, etc. Certain departments may be utilized later for laboratories, research, diagnostic, preventive medicine, social service, or other special departments which the development of the locality may render necessary. The great strides which medicine and surgery are now making will, from time to time, necessitate many additional departments.

Serious consideration should be given to the advisability of establishing a country institution for the care of the less acute cases, convalescents, and cases of a special type. This may have a distinct bearing upon the present and future of the proposed hospital.

The membership of this Association should include many men, and women too, as Hospital Administrators who have literary talent, this being exemplified in the hospital literature of today. It is unfortunate that many able hospital administrators who have a fund of valuable knowledge and data cannot, or are reluctant, to afford the time to make public record of this information. Such knowledge and data would be of untold value to those engaged in the planning and administering of hospitals, especially where such information offers guidance for the future.

The standardization of departmental equipment and administration has undoubtedly advanced more rapidly than has the standardization of the hospital as a whole. The development of the whole, especially as it relates to future growth, is of greater importance than the excessive development of individual departments, except in the case of specialization.

Much valuable information of a definite character will undoubtedly be evolved as a result of the study now being carried on by the College of Surgeons, which, be it hoped, may be placed before the hospitals in the form of concrete data and recommendations.

My predictions of the war period, especially the one made at the last meeting of this association, that building costs would advance upon the conclusion of the war are being verified by the prices of today. Such temporary and limited recessions as occurred are now offset by current increases, with no hope of lower costs for years to come. Rather now we look forward to somewhat increased costs of material and labor with a degree of assurance that leaves no doubt as to the wisdom of building at the present time. Mr. Crow, architect, and Mr. Kimball, consulting engineer, presenting papers at this session, can but accord with this statement. The matter of cost may not, therefore, be urged as a reason for postponing the erection of needed hospital buildings.

Many complexities frequently arise over endowments, memorials, and memorial hospitals. When a memorial institution is under consideration, its future development should be definitely studied from every view point in order that the present and future shall not be handicapped as a result of the provisions upon which the memorial is founded, or through a misapplication of the provisions of the donor.

Mr. Lewis, an architect, has very ably stated recently that the conclusion of the war presents the thought of many possible memorial hospitals. With this statement of fact, we perhaps all agree. The plan for a Roosevelt Memorial is very excellent, but would it not make a more glorious and appropriate memorial, as well as one more helpful to mankind, if this memorial were in the form of a national hospital, known as "The Theodore Roosevelt Hospital," to be built in Washington and to have its present as well as its future properly provided for? I believe that if Mr. Roosevelt could have expressed his wish, it would have been for an active memorial.

The hospital can in its important aspects embody all the architectural beauty and artistic design of a monument in its expression and symbolize Mr. Roosevelt, the great, fearless, patriotic American citizen, as well as our endeared statesman.

## DR. A. R. WARNER BECOMES EXECUTIVE SECRETARY OF HOSPITAL ASSOCIATION

### Trustees Assemble at New York and Decide Important Matters—Headquarters Will Be in Chicago—Institutional Membership to Be Fixed Policy

All nine members of the Board of Trustees of the American Hospital Association for the year of 1919-20 attended the first meeting of the Board at the Manhattan Hotel, New York, on October 6, 1919. This was a splendid showing and augurs well for a year of genuine interest and active work. The meeting was presided over by Dr. Joseph B. Howland, the newly elected president, who recently became superintendent of the Peter Bent Brigham Hospital, Boston. Mr. Howell Wright, who relinquishes his position as executive secretary of the Association on November 1 acted as secretary. The other members present were Mr. Asa S. Bacon, superintendent, Presbyterian Hospital, Chicago; Dr. Louis R. Baldwin, superintendent, University Hospital, Minneapolis, Minn.; Richard P. Borden, Union Hospital, Fall River, Mass.; Dr. Louis H. Burlingham, superintendent, Barnes Hospital, and administrator St. Louis Children's Hospital, St. Louis, Mo.; Miss Mary L. Keith, superintendent, Rochester General Hospital, Rochester, N. Y.; the Rev. Maurice F. Griffin, St. Elizabeth Hospital, Youngstown, Ohio; Dr. Robert J. Wilson, superintendent, Health Department Hospitals, New York City, and Dr. Andrew R. Warner, superintendent, Lakeside Hospital, Cleveland, Ohio.

Ways and means of broadening the work of the Association were thoroughly discussed, for it was felt that the Association was now face to face with a big opportunity for doing some greatly needed constructive work.

The important question of the location of the Association's headquarters was re-opened. The advantages and disadvantages of the principal cities of the country were carefully considered and Chicago was finally decided upon as the best place in which to locate the home office because of its geographical position and its great medical and hospital interests. The Cleveland office will be continued for a short time, but the Washington office will be closed at once.

Another question, which was brought up, was the executive secretaryship of the Association. After prolonged discussion, Dr. Andrew R. Warner was appointed to the position. He will assume his duties on November 1, 1919.

It was decided that the exact date of the 1920 meeting, to be held at Montreal, Quebec, would be determined only in conference with the Montreal local committee, but preference was expressed for the week of October 4 to 10.

The Trustees felt that it was a desirable custom to have the annual meeting of the American Dietetic Association at the same time and place that the annual convention of the American Hospital Association occurs. The secretary, therefore, was authorized to extend an invitation to the American Dietetic Association to meet at the same time and place that the American Hospital Association meets. The secretary was also authorized to extend a similar invitation to the National Society for the Promotion of Occupational Therapy.

Mr. Michael M. Davis, Jr., Director of the Boston Dispensary, was appointed consulting chief of the Service Bureau on Dispensaries and Community Relations. The experience and prominence of Mr. Davis in both fields covered by this bureau are well known and members of the Association who have occasion to consult with this Bureau will receive valuable service. All correspondence with the Bureau is to be carried on through the executive secretary of the Association, who will on occasion refer problems to Mr. Davis for information. These consultations are without expense to the institutional members of the Association. If, however, it is mutually agreed that it is desirable for Mr. Davis to visit the community, any expense which he incurs in so doing will be paid by the dispensary or hospital he is serving.

The value of a Service Bureau on Architectural Plans and Buildings was considered, particularly in relation to its value to small hospitals. It seemed desirable that the smaller hospitals, which ordinarily employed a local architect, who often has had little or no experience in hospital planning, should have access to a bureau of this kind. Various plans for the organization of such a bureau were discussed but no decision was reached. The matter was left in the hands of Mr. Richard P. Borden and Dr. Robert J. Wilson, who will give this matter further consideration and report at the next meeting of the Board of Trustees.

It is now assured that the institutional membership of the Association will become the primary membership, as originally planned. It is desirable, however, that hospital workers as individuals have direct contact with the American Hospital Association and that hospital workers be organized as other vocations are organized. It is equally desirable that the state associations develop and become stronger. For these reasons the Trustees are giving consideration to the development of a plan of organization similar to that now used by various medical nursing associations. The essence of such a plan is that personal members join the American Hospital Association through the state association, thereby becoming members of both and adding to the strength of both. The president appointed a committee, consisting of Dr. A. R. Warner, chairman, the Rev. M. F. Griffin, and Mr. Asa S. Bacon, to give further consideration to the details of such a plan and to present their conclusions at the next meeting of the Trustees.

The meeting was marked by a strong desire to see the Association do a great deal of constructive work and there is every reason to believe that this is the first of a series of meetings of the Board of Trustees that will result in the Association taking a most helpful leadership in a growing and increasingly complex field.

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### Honor the Dead by Helping the Living

In a suburban town a few years ago a wedding of much interest took place. A girl of wealth and social position, beautiful in spirit and lovely in face and form, was married to a young man of fine character and high ideals. For one happy year they lived together in New York. Then again the father's home in the suburbs was filled with flowers, and his only daughter and her baby lay sleeping among them.

The question of a memorial came up. In life she had a sweet way of going among those who were sick or sad and bringing to them cheer and comfort. An idea dawned upon the young husband's mind, it grew and expanded.

As she had loved to help the sick and the feeble why not give to the little town in which she spent her girlhood someone who would do it in her place? The result was a public health nurse for that community, and in what more fitting way could the spirit of the young mother be perpetuated?

Our land is filled just now with those who are mourning the loss of a son, husband or brother. Perhaps there are many bereaved parents who are seeking a fitting

memorial. Surely as a remembrance for one who laid down his life so that others might live, the public health nurse is a beautiful memorial. Just at present the Red Cross is seeking to install a public health nurse in every community.

## THE SEGREGATION OF POWER PLANT COSTS

### Complete Records of Departmental Operations Valuable in Promoting Efficiency and Economy—Apportionment of Expenses Complex Problem

By D. D. KIMBALL, New York State Committee on Ventilation, and HENRY M. POLLOCK, M.D., Superintendent, Massachusetts Homeopathic Hospital, Boston.

The cost of installing the complete mechanical equipment of a hospital may equal 25 to 30 per cent of the total cost of its construction, and the cost of maintaining and operating this equipment may be in similar proportion to the cost of administering and operating the hospital. It appears of the greatest importance, therefore, that complete records of plant operations be kept. They may be made especially valuable in promoting efficiency and economy.

#### SERVICES SUPPLIED BY THE POWER PLANT

The importance of the power plant department, and the variety of services it provides, are not fully realized even by those most interested. A survey of these services may well serve as the basis of our consideration of this problem.

The following are common to all hospitals:

Live steam is used in the power plant, at boiler pressure; the kitchen, at fifteen pounds to forty pounds pressure; the laundry, at eighty pounds to ninety pounds pressure; the sterilizers, at sixty pounds pressure; the drying equipment; for warming food, dishes, blankets, clothing; and certain radiation—as in operating rooms, requiring steam when heating system is not in service.

Low pressure steam is used for warming the building (or buildings) and for heating water.

Electric service is used for lighting, power service, x-ray equipment, nurses' signal system, annunciators, telephones, fire alarm system, clock system, watchman's clock system, bells, and batteries.

Water is used for the cold water system, hot water system, sterilized water, boiler supply, refrigerating plant, fire protection—hose and sprinklers, lawn sprinkling.

Refrigeration is used for cold storage, ice, and cooled drinking water.

Elevators include those for passengers, freight, dumbwaiters, and ash hoists.

Repairs cover the heating plant, the live steam equipment, the plumbing system, the electric equipment, the elevators, the refrigerating system, and the building.

Garbage disposal may best be treated as a part of the heating plant, being a small item.

Janitor service should preferably be placed under the care of the house-keeper.

#### ITEMS OF COST

The items making up the cost of operating the power plant department are, fuel, labor, water, electricity, repairs, and supplies.

The exact division, or assignment, of these costs is a most complex problem, especially if it be desired to apportion the cost to all of the different services rendered, and among the different departments or buildings (where there are several buildings). Nevertheless, it is believed that such a method of power plant accounting is possible.

New institutions of magnitude should be so equipped with scales and meters as to make exact departmental determinations of cost possible. In smaller and older hospitals a certain amount of approximation is necessary. Even so, it is believed that the effort is well worth while. Indeed, in many cases the administration of the hospital's finances makes this necessary.

The form will be the same in both exact and approximate accounting, only the methods of determination will vary. A basic plan of accounting will, therefore, first be outlined.

#### MAJOR ACCOUNTS

As a basis for accounting a "power department" ledger should be used for the purpose of determining the detailed and gross cost of the power plant operation. This ledger should first provide for certain major accounts in which items of operating cost should be charged. These should include (1) fuel, (2) water, (3) electricity, (4) labor, (5) repairs, and (6) supplies.

All bills for fuel, water, repairs, and supplies should be charged directly to the corresponding "major accounts," and the amount of the power department payrolls should be charged to the "labor" account.

If the electric current is purchased, the cost there-of appears directly. Otherwise, into the "electricity" account will be entered a certain portion of the "fuel," "labor," "water," "repairs," and "supplies" accounts, by means of a series of transfers. This is accomplished by charging against the "electricity" account a proper proportion of each of these other "major accounts," determined as explained below, while crediting such accounts with the amounts so charged to "electricity."

#### SERVICE ACCOUNTS

These "major accounts" are then to be sub-divided or charged into various "service accounts" in such a manner that the cost of each service rendered is determined.

Certain services are associated and the cost of others is so small that a considerable degree of grouping is permissible in order to avoid an unnecessary multiplicity of accounts. In small institutions this grouping may be carried farther than in large plants. Two lists of so-called "service accounts" are therefore suggested, as follows:

| Complete List | Modified List |
|---|---|
| (a) Heating. | (a) Heating. |
| (b) Drying. | (b) Cold Water. |
| (c) Sterilizing. | (c) Hot Water. |
| (d) Cold water. | (d) Kitchen. |
| (f) Kitchen. | (e) Laundry. |
| (g) Laundry. | (f) Lighting. |
| (h) Lighting. | (g) Power. |
| (i) Power. | (h) Refrigeration. |
| (j) X-ray. | (i) Repairs. |
| (k) Secondary (electric) systems. | |
| (l) Refrigeration. | |
| (m) Elevators. | |
| (n) Repairs. | |

In the modified list "drying" and "sterilizing" are included in "heating"; and "x-ray," "secondary electric systems" and "elevators" are included in "power." "Cold water" and "hot water" may also be combined, but the separation of these is desirable because of the additional expense involved in heating the "hot water." Electricity used in heating pads, toasters, baths, vacuum cleaners, disc fans, etc., is included in "power." Electricity used for driving ventilating fans should be charged to "heating," the term "heating" being intended to include ventilation.

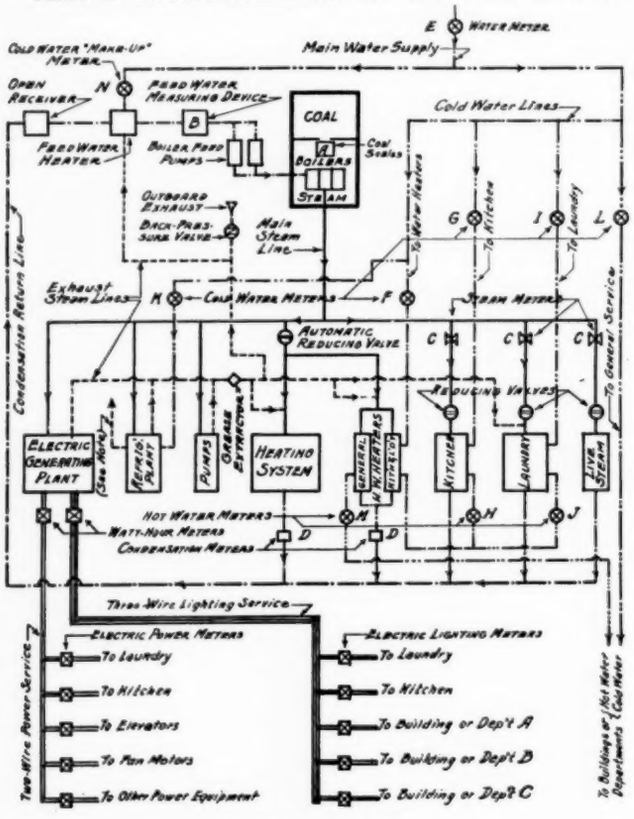
### PROBLEM OF APPORTIONMENT

With our scheme evolved, we are far from providing the means of its application. It is, indeed, an involved problem.

There is this serious objection to any plan of approximation. No real check of efficiency is obtained, and no premium is offered for the economical operation of any department, wastes of one or more departments being averaged over all departments. Hence the value of an exact method of accounting.

Let us briefly scan some of the difficulties encountered in undertaking the exact accounting: For instance, the fuel is used all at one point (under the boilers). The steam thus made is used in heating the building; in heating water for various uses and departments—as live steam for the laundry, kitchen, sterilizers, and drying; for making electricity for light, power, x-ray, secondary systems, and elevators; and for operating the refrigerating plant. In the case of a hospital having its own electric power plant the greater proportion of the steam is used twice—

CHART 1. SHOWING INTERRELATION OF POWER PLANT SERVICES.




### NOTES ON CHART

In case of insufficiency of exhaust steam for the heating of feed water, a supplementary supply of live steam is furnished through the connection between the live steam and exhaust steam connections to the heating system.

The live steam service to the right of the chart is intended to provide steam for sterilizers, blanket warmers, bed pan warmers, steam tables in diet kitchens, etc., and for auxiliary heating in Operating Rooms, Recovery Rooms, Maternity Department and Nursery.

Pumps include boiler feed pumps, vacuum heating pumps, domestic cold water supply pumps, hot water circulating pumps, elevator pumps, air compressors, vacuum pumps, etc., the steam used in these pumps being estimated and charged to proper departments.

The electric power feeder marked "to other power equipment" is intended to include that required for vacuum sweepers and other auxiliary electric equipment.

If the refrigerating machine is operated by electric motor a separate feeder line with meter should be provided therefor.

Cold water required for sterilizers, stills, vacuum sweepers, etc., will be supplied from the general service cold water line. The water leaving the refrigerating machine, i. e., that used for condensing and jacket cooling, may be used in the hot water supply system, as "make-up" water for the boilers, or in the general cold water supply.

If a steam driven stationary vacuum sweeping plant is installed its steam consumption must be determined as in the case of pumps. If operated by electric motor, its electric current consumption may be metered.

first as live steam in the engines, and then in the form of exhaust steam for heating the buildings, and heating water. This second use of the steam, mixed automatically with other live steam further compounds confusion.

Parenthetically, it may be stated that the value of this exhaust steam upon leaving the engine is not in the least diminished as a heating medium, although all engineers do not appreciate this fact. Therefore, there is no practical reason why any charge for fuel should be made against the production of electricity for lighting, power, x-ray, secondary electric systems, and elevators during that period of the year in which all of the exhaust steam may be so used. This will generally be found to cover the period from October 15 to April 15. During the balance of the year a certain amount of fuel must be charged to electric current production, bearing in mind that even then much of the exhaust steam may be used for heating water and, in some cases, for warming and drying.

In the same manner as in the case of fuel, labor enters into the cost of heating, water (hot), electricity, and repairs.

Chart I is intended to show the interrelation of the various power plant services. Fuel and water are fed to the boilers and steam is there produced. It is thence distributed to the various services, as indicated. Capital letters (in parentheses) in this text refer to the same letters on the chart.

### METHOD OF EXACT APPORTIONMENT

First, let us not use the term "exact" too literally, for certain assumptions are inevitable, but the extent of such assumptions may be limited so that a reasonable degree of accuracy may be obtained.

The real problem lies in the means of obtaining the necessary data to make possible the apportioning of the "major accounts" into the "service accounts." Let us take the "major accounts" in the order listed above.

*Fuel*—For apportioning the fuel cost the following basic information must be secured: (a) Total amount of fuel burned. This may be determined by re-weighing the coal as burned on the boiler room coal scales (A); (b) Total pounds of steam evaporated by the boilers. This is to be determined by means of a boiler feed water measuring device (B), or by the use of steam meters; (c) The distribution of steam. This is to be determined by the use of steam meters (C), and condensation meters (D), which should be so installed as to record the amount of steam supplied to the heating system, hot water tanks, laundry, kitchen and sterilizing system, the steam used in the refrigerating and electric plants being determined as later explained.

The total of the readings of the steam service and condensation will be less than the total of steam produced in the boilers by the amount used in the electric plant (little or none in the winter and more in the non-heating months).

A word as to the use of meters, especially the steam and condensation meters. We all recall the days when water and electricity were sold at, so-called, "flat rates." Today such a thing is almost unknown. Every building has its water and electric meters, and, customarily, every apartment in apartment houses has its own electric meter. The cost of water meters and electric meters is so small that no excuse can be offered for their non-use in hospitals.

Steam, as furnished by district heating and power plants, has here-to-fore been sold at "flat rates." Now condensation meters are used, and the steam meter is becoming more and more in evidence. The latter has

now been developed to a point of reasonable accuracy under extreme variations in loads and other conditions, and its cost is not, generally speaking, prohibitive. Only in a small hospital, may it be so regarded. It is largely because of a general lack of appreciation of the desirability of accurate accounting, and of the tremendous possibilities of effecting economies resulting there-from, that the use of water, electric, and steam meters has been so seriously neglected. Also, the frequent "paring down" of the cost of the mechanical equipment, regardless of its effect on economy of operation, has been largely responsible for the omission of these meters.

The fuel burned under the boilers is used to produce steam, and the cost of this fuel is to be divided among the various "service accounts" in the proportions in which the steam is distributed to the various services, as indicated by the steam and condensation meter readings.

*Water*—In relatively few instances is water now furnished free to hospitals. A water meter is usually applied to the service main, and the gross cost of water is a known amount. The distribution of the water cost may be determined by the use of local service water meters.

Water meters should be applied to the boiler "make-up" supply (N), to the cold water connection to the hot water heating tanks (F), to the kitchen mains (hot and cold water), (G and H), laundry (hot and cold water) (I and J), to the water supply line to the refrigerating plant (K), and to the general supply mains for cold and hot water (L and M).

The cost of new water ("make-up") supplied to the boilers (as determined by a water meter N), and also the cost of repairs and supplies for the boiler plant and its auxiliaries, must be divided and charged into the "service accounts" of heating, hot water, kitchen, laundry, electricity and refrigeration in the same proportions as the fuel is charged, these being an element in the cost of producing steam prior to its destribution. The cost of steam used in heating boiler feed water is to be similarly divided.

In the case of the hot water it appears necessary to have one general account for hot water, embracing a charge for fuel (in proportion to the steam used in heating the water), labor, water, repairs, and supplies, because all of the hot water is usually heated at one point. This account may then be sub-divided into the separate "general supply," "laundry," and "kitchen" accounts as indicated by hot water meters (H, J, and M), installed on the mains supplying each department.

*Electricity.*—Where electricity is purchased its total cost is directly known. Where produced by means of an isolated plant the cost of electricity is made up of fuel, water, labor, repairs, and supplies. The fuel and water costs incidental to the production of electricity will be in proportion to the steam used in the generating plant. With the total amount of steam produced known (by means of the feed water measuring device B) and the steam used in all other services determined, as explained, the remainder of the steam is chargeable to the generating plant. Repairs and supplies as applied to the electric plant are readily segregated.

It is suggested that the portion of the total labor cost to be charged against "electricity" should be that represented by the cost of the excess labor required for the operation of the electric plant over and beyond the cost of labor if no electric plant existed. It is believed that this may be determined with reasonable accuracy. The cost of such labor will usually be found to be small.

The cost of electricity is, therefore, made up of the following items: (1) fuel—a proportion of the total cost of fuel equal to that proportion of the total amount of steam charged to the electric plant; (2) water—the same proportion of the cost of new ("make-up") water supplied to the boilers; (3) labor—the excess cost of labor over that required if no electric plant were operated; (4) repairs—those applied directly to the electric generating plant, at cost, and a proportion of those applied to the boiler plant and its auxiliaries in proportion as steam is charged; and, (5) supplies—charged as stated for "repairs." See Item (4) above.

Because the proper charge of these items against electricity is the subject of later determination, it seems best that all fuel, water, labor, etc., should first be charged to their respective "major accounts," counter-charges and credits being made, when determinations make this possible.

Assuming the total cost of electricity to be thus determined, and the total kilowatts of electric current produced to be known by means of the main switchboard meters, the cost of each kilowatt of electricity is readily determined by dividing the total cost, expressed in cents, by the total kilowatt hours of electric current produced. Electric meters should be applied in the electric service mains serving each department in which the cost of operation is desired. As a rule, all motors, including those driving ventilating fans, are on power mains, and the current used is metered as a whole.

The current used for power in the laundry and kitchen should be separately metered. So also should that used for driving ventilating fans, as this should be charged to the heating account. In a new institution the wiring system may be so designed as to make this method of recording simple, otherwise approximation, as referred to below, may become necessary.

*Labor.*—Labor cost as chargeable to electricity has already been discussed. The labor to be charged to "repairs" may be made a matter of direct record (see below). The remainder of the labor cost should be divided and charged to the heating, hot water, kitchen, laundry and refrigeration accounts in proportion as the cost of fuel is charged to these five services.

*Repairs.*—Repairs involve materials and labor. Only a definite system of records is essential to proper accounting of the cost of repairs. The use of "Repair Record Sheets" as used at the Massachusetts Homeopathic Hospital will make this a simple matter. The "Repair Record Sheet" is reproduced on the page following.

*Supplies.*—A similar system applied to the purchase and distribution of supplies will assure a proper accounting of the cost of supplies. Where supplies are bought in bulk for all departments, the cost should first be charged into the "supplies" account, being credited to it and then charged to the various service accounts as used.

If the above method of cost determination appears complicated, may we suggest that, if such meters as have been mentioned are available, the accounting becomes a relatively simple problem? Many phases of hospital accounting are vastly more complex and laborious, and are of less moment in that they offer much less opportunity for the promotion of efficiency and economy.

### APPROXIMATE METHODS OF APPORTIONMENT

The above method of apportionment may not be applicable to the majority of hospitals as we find them for the reason that meters are not available, and the piping and wiring systems may be such as to make the installation of the meters difficult and so expensive as to be prohibitive.

*Fuel.*—To apportion the cost of fuel, the amount burned at the boilers must be determined as in the exact method, and the pounds of steam made, as well as its distribution, must be determined by approximation if no other method is possible. The amount of steam made may be approximately determined by tests made quarterly or more frequently in order to determine the average operating efficiency of the boiler plant; and by multiplying the total number of pounds of coal burned during a given period by the number of pounds of water evaporated per pound of coal, as shown by the tests.

Afterwards, tests may be made in which the steam condensed in the heating of the buildings, in the heating of water, and that used for sterilizing, etc., is weighed. This will serve as a guide to the amount of fuel used.

To be informative, these tests should be made on all services simultaneously, from time to time, and under different load and weather conditions.

The determination of the cost of fuel used for heating might be made in proportion to the cubic contents of the various buildings or departments; or in accordance with the number of patients accommodated; but the nature of the use of these different departments is so varied that neither of these plans is to be commended.

Possibly the best method of approximation of the cost of fuel for heating is to charge against the heating a certain amount of coal per square foot of radiating surface as installed. Assuming that a building is equipped with a steam heating system in a climate where a minimum outside temperature of zero prevails we would allow 100 pounds of coal per square foot of radiation as an average for the entire heating system, although records of hospitals vary from 75 to 140 pounds. For a hot water heating system, allow 60 pounds as one square foot of direct steam radiation. For other than zero minimum temperature correct these figures in proportion as outside and inside temperature differences vary from 70 degrees.

There are various forms of radiation surfaces and these should all be made the equivalent of direct steam radiation by the use of the following factors: Direct steam radiation, 1.00; direct-indirect, 1.25; indirect (gravity), 1.50; fan coils, 6.00. The fuel consumption of hot water heating surfaces is to be rated as 60 per cent of that of steam services.

The figures given for fan coils should be reduced in proportion as the number of hours of use per day is to 24, if this surface is not in use continuously.

This plan of fuel approximation will correspond to the general results obtained in hospital heating plant operation. Of course some heating plants are more economically operated than others. As in the case of any plan of approximation the opportunity for promoting individual departmental economies in heating is absent.

Fuel to be charged to water heating may be determined by means of the following formula:

$$\text{Pounds coal} = \frac{\text{Gallons} \times 8.33 \times (T-t)}{8{,}000}$$

, in which gallon equals gallons of water heated; 8.33 equals transfer of gallons to pounds of water; T equals final temperature hot water—usually 120 to 180 degrees; t equals initial temperature cold water, usually 40 to 50 degrees; 8,000 equals B.T.U. per pound of coal transferred to steam. (It may be more or less according to quality of fuel used, and the efficiency of boiler plant operation.) This will give approximately 11.5 pounds of coal for each 100 galgons of water heated from 50 to 160 degrees.

A water meter is desirable to measure water passing through the hot water tank, and thermometers (preferably of the recording type) should be provided to determine the temperatures of the incoming and outgoing water. Otherwise, an approximate estimate of the volume of water may be made as suggested below in connection with water distribution—water used per fixture.

Part of the steam used in the kitchen is condensed in the appliances in which it is used and is returned as hot water to the boiler plant. The amount of this may be

REPAIR RECORD SHEET

*Requests for Repairs should be signed by the Department Head or Head Nurse.*

*Classify by Departments as indicated below, and send to Superintendent for approval before 9 a. m.*

*Repairs requested and not made within a reasonable time should be again requested, using PINK blank.*

CLASSIFICATION OF REPAIRS

| CARPENTER | ENGINEER | PAINTER |
|---|---|---|
| Awnings | Cold Storage | Glass |
| Baskets | Electrical Apparatus | Floors |
| Bedside Tables | Elevators | Painting |
| Bedsteads | Gas | Plastering |
| Brick Work | Heating | Varnishing |
| Casters | Iron Work | Window Cords |
| Curtains | Lights | |
| Doors | Machinery | |
| Doorchecks | Metal Work | |
| Dumbwaiters | Plumbing | |
| Furniture | Refrigerators | |
| Locks | Sterilizers | |
| Marble Work | Surgical Repairs | |
| Roof Work | | |
| Screens | | |
| Tile Work | | |
| Upholstery | | |
| Woodwork | | |

Mechanical departments should make no repairs other than emergency, except on approved requisitions, and should give cost of time and material on all work performed. Return requisitions promptly to bookkeeper upon completion of repairs.

REVERSE SIDE OF REPAIR RECORD SHEET

*Read Reverse Side* DATE _____

_____ DEPARTMENT

REPAIRS ARE REQUIRED AS FOLLOWS:

*Signed* *Approved*

| *No.* | *Description* | *Place* |
|---|---|---|
| 1 | | |
| 2 | | |
| 3 | | |
| 4 | | |

COMPLETE DATE BY

| *No.* | *Materials* | *Value* | *Time* | *Total Cost* |
|---|---|---|---|---|
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |

determined by weighing. Other steam is used in vegetable cookers, etc., which is not so returned and the amount (not large) must be estimated. Manufacturers of kitchen apparatus can furnish data as to the steam consumption of such apparatus, but the variety of kinds and sizes makes a statement impracticable in this paper. The duration of the period of daily use of this apparatus also has a determining effect upon its steam consumption.

With the quantity of steam used in the kitchen determined, the coal to be charged to the kitchen is arrived at by dividing the pounds of steam by a figure corresponding to the pounds of steam evaporated per pound of coal fired to the boilers, assumed, or determined by the tests above suggested.

In the laundry the most of the steam is condensed and returned to the boilers; but some steam may be used directly in heating water in washers, tubs, etc., and the amount so used must be estimated. Manufacturers of laundry machinery can furnish data as to the steam consumption of their apparatus, which varies with the type, size, and hours of use. Pounds of steam may be converted to pounds of coal as suggested above for the kitchen.

Steam, and thus fuel, used in the refrigerating plant can be calculated by engineers familiar with refrigerating machinery operation, or from the manufacturers of such machinery.

When steam pumps are in use, a further problem is involved. The figure quoted above as to the coal consumption in the heating system includes any steam used in operating condensation return pumps and heating system vacuum pumps. The steam used in other pumps may be calculated with reasonable accuracy. It should be borne in mind that the exhaust steam from the condensation return pumps and the heating system vacuum pumps will always be used in the heating of the buildings and in heating water, and the exhaust steam from other pumps may be largely so used.

Under average conditions, eight pounds of coal are required to produce one kilowatt of electric current. During the summer months, when the exhaust steam is but little used (for heating water only), coal may be charged to electric current production at this rate: The amount should be reduced as the exhaust steam becomes used for heating until no fuel is charged when all of the exhaust steam is utilized.

There are some steam losses in transmission and in leakage. An addition to the fuel to be charged to each service should therefore be made to cover this loss. Five per cent should be a generous allowance for this purpose.

After one has determined the fuel to be charged to heating, to heating water, to the kitchen, laundry, refrigeration, and pumps, the remaining steam, manifestly, is chargeable to electric current production if an isolated plant is used. If no electric generating plant is operated, the total amount of fuel should be divided among the other services above mentioned.

*Water.*—If water meters are not provided, the cold and hot water consumption, and as a result, its cost, may be approximately divided in proportion to the number and character of fixtures, the rating being as follows:

| Water consumption. | Gallons per hour | Rating |
|---|---|---|
| Lavatories and sinks | 10 | 1 |
| Baths | 20 | 2 |
| Showers | 40 | 4 |
| Water closets | 20 | 2 |
| Urinals | 10 | 1 |
| Dish washing machines | 40 | 4 |
| Urns | 5 | .5 |
| Cookers | 10 | 1 |
| Washers (laundry) | 50–100 | 5–10 |
| Soap and starch kettles | 10 | 1 |

These figures may be varied, especially with reference to cookers and washers, according to the size of each piece of equipment and the frequency and duration of periods of use.

It is generally assumed that 40 per cent of the water used in lavatories, baths, and showers is hot water. For other apparatus requiring hot water it is assumed that 70 per cent is the correct proportion.

*Electricity.*—If electric meters are not provided on the electric mains supplying the various services, the division of electric current may be made in proportion to the connected load in each department, modified in proportion to the hours of service in each case. Or, the electric current consumption for the different services may be readily measured by the use of a portable meter.

The tests on the different departments might better be made simultaneously, but this would involve the use of several meters. Otherwise, the measurements should be made in such a manner as to determine the "average" load in each department.

"Labor," "repairs," and "supplies" should be charged into the various service accounts as outlined under the heading of "Method of Exact Apportionment."

A study of certain hospitals suggests the following annual transfer of certain of the "major accounts" to the "service accounts." The tests above mentioned may modify these slightly.

| | A Fuel | B Water | C Electricity | D Labor | |
|---|---|---|---|---|---|
| a. Heating | Note a | 4 | .. | 75 | (Note b) |
| b. Cold water | .. | 30 | .. | .. | |
| c. Hot water | 24 | 20 | .. | 3 | |
| d. Kitchen | 30 | 11 | 10 | 6 | |
| e. Laundry | 20 | 18 | 30 | 10 | |
| f. Lighting | 14 | 7 | 50 | .. | (Note c) |
| g. Power | 6 | 3 | 20 | .. | (Note c) |
| h. Refrigeration | 6 | 7 | .. | 6 | |
| i. Repairs | .. | .. | .. | .. | (Note d) |

(Note "a"). The fuel to be charged to heating is assumed to have been charged on the basis of 100 pounds of coal to the square foot of direct steam radiation, as above suggested. The percentage figures for fuel relate to the balance of coal consumed for other purposes than heating.

(Note "b"). The greater portion of the labor cost is chargeable to heating, inasmuch as it is the principal service rendered by the labor.

(Note "c"). The labor cost charged to electric current production is assumed to be determined in the manner suggested.

(Note "d"). Repair labor is assumed to have been directly charged to the proper service account.

The remaining labor cost after deducting that charged to electric current productions and repairs is to be divided according to the percentages given.

Through the cooperation of the engineering and accounting departments of a large number of hospitals, this plan may be developed and improved. The admirable accounting systems in use in some of our hospitals, such, for instance, as that devised by Mr. V. S. Thorne, of the Presbyterian Hospital, of New York, is illustrative of what may be accomplished. A thoroughly developed system would prove helpful to many hospitals and would constitute another advance in the hospital field, especially in reducing wastes, and in effecting other appreciable economies of the utmost importance in this period of high costs.

### MONTHLY RECORDS

In the above, annual records have been discussed. If a monthly division of accounts is desired it may be made as follows:

Heating costs are incidental to the months of the heating season only. Cold water should be distributed evenly over the twelve months, except as it is used for lawn sprinkling during the summer months.

Slightly less hot water may be used in the summer months, and cooking and laundry work would be less expensive during the summer months.

Lighting is a relatively small factor in summer, but the electric power consumption, aside from that used to drive ventilating fans (which is charged to the heating account)

varies but little from month to month in the net cost. It is obvious that refrigeration is much more expensive during the summer.

Where meters are provided for exact determinations, monthly records are readily possible. Otherwise an approximation only is possible. For such cases the following table is offered for the division of the annual costs into monthly costs, the figures indicating a per cent of the total:

| | Heating | Hot Water | Kitchen | Laundry | Lighting. | Power | Refrigerator |
|---|---|---|---|---|---|---|---|
| January | 18 | 10 | 10 | 10 | 16 | 9 | 4 |
| February | 16 | 8 | 9 | 9 | 13 | 8 | 4 |
| March | 12 | 9 | 9 | 9 | 10 | 9 | 5 |
| April | 9 | 8 | 8 | 8 | 7 | 8 | 6 |
| May | 5 | 8 | 8 | 8 | 4 | 8 | 8 |
| June | 3 | 7 | 7 | 7 | 3 | 8 | 11 |
| July | .. | 7 | 7 | 7 | 3 | 8 | 16 |
| August | .. | 7 | 7 | 7 | 3 | 8 | 15 |
| September | 3 | 7 | 7 | 7 | 5 | 8 | 11 |
| October | 7 | 9 | 9 | 9 | 8 | 8 | 9 |
| November | 11 | 10 | 9 | 9 | 13 | 9 | 6 |
| December | 16 | 10 | 10 | 10 | 15 | 9 | 5 |

### SEPARATION OF BUILDING ACCOUNTS

Where there are a number of buildings, some of them possibly administered under separate funds or endowments, it may become necessary to so divide these "service accounts" that the proper proportion shall be charged against each building. The application of steam, electric (light and power), and water (cold and hot) meters makes such a division a simple matter in-so-far as it relates to the "service accounts" of (a) heating, (b) cold water, (c) hot water, (f) lighting, and (g) power.

### SEPARATING CHARGES BY APPROXIMATION

The division should be made according to that proportion which the local meter readings bear to the readings of the meters at the point of original production—the meter on the boiler feed supply, or the meters on the main steam lines in the case of the fuel, the main switchboard meters in the case of lighting and power, the water meters at the main feed line, and at the hot water tanks in the case of the cold and hot water services.

Lacking the meters, the apportionment of the "service accounts" of heating, cold water, hot water, lighting, power, and refrigeration may be divided according to the methods above suggested for "Approximate Methods of Apportionment."

The original survey for the purpose of determining these divisions of cost may be somewhat laborious, but once made the work of accounting is simple, much less involved, in fact, than are other phases of hospital accounting.

### PERCENTAGE BASIS IN COST ACCOUNTING

Especially is this true if the results obtained are reduced to a percentage basis. The Massachusetts Homeopathic Hospital follows this method, but as certain of its buildings are supported in part by individual endowments it apportions its power plant expense to these rather than to departments or items, each building being charged separately under various other heads for its laundry and for the food furnished its patients, nurses, and employees.

During the month of January (1919) this hospital consumed 815,000 pounds of coal. Having determined the equivalent of direct radiation in each building and assuming that 67 pounds of coal would be required per square foot of radiation for the heating season (an amount considerably less than average, but apparently justified by the results obtained), and that 18.62 per cent of this 67 pounds would be required for this month as per Table 5, Table 1 was computed, and the results reduced to a percentage basis.

TABLE 1. STEAM HEATING

| | Square feet | Pounds of Coal | Per cent |
|---|---|---|---|
| Main Hospital | 11,600 | 144,701 | 33.62 |
| Robinson Building | 7,500 | 93,526 | 21.73 |
| Evans Building | 6,500 | 81,088 | 18.84 |
| Vose Hall | 4,500 | 56,724 | 13.04 |
| Hotel Newton | 2,500 | 24,920 | 5.79 |
| Newton Home | 850 | 10,760 | 2.50 |
| Stoughton Hall | 800 | 9,942 | 2.31 |
| Female Help's Hall | 750 | 9,340 | 2.17 |
| Total | 34,500 | 430,401 | 100.00 |

During this month 23,840 kilowatt hours of electricity were generated. Assuming that eight pounds of coal would be required to generate one kilowatt hour of electricity, if the exhaust steam were wasted, but that 85 per cent of the steam would be available for heating after having performed its work in the engine, and knowing the consumption of electricity in each building, Table 2 was prepared.

TABLE 2. ELECTRICITY

| | Kilowatt hours | Pounds of Coal at 1.2 per Kilowatt hour | Per cent |
|---|---|---|---|
| Main Hospital | 11,490 | 13,788 | 48.20 |
| Robinson Building | 6,000 | 7,200 | 23.17 |
| Evans Building | 2,750 | 3,300 | 11.51 |
| Vose Hall | 1,200 | 1,440 | 5.04 |
| Hotel Newton | 200 | 240 | .84 |
| Newton Home | 700 | 840 | 2.94 |
| Stoughton Hall | 600 | 720 | 2.52 |
| Female Help's Hall | 600 | 720 | 2.52 |
| Male Help's Hall | 300 | 360 | 1.26 |
| Total | 23,840 | 28,608 | 100.00 |

The total amount of coal required to supply live steam to the buildings was regarded as the amount remaining, and Table 3 was made up from the known consumption of each.

TABLE 3. LIVE STEAM

| | Pounds of coal | Per cent |
|---|---|---|
| Main Hospital | 269,991 | 75.85 |
| Robinson Building | 40,000 | 11.24 |
| Evans Building | 20,000 | 05.61 |
| Vose Hall | 10,000 | 02.82 |
| Hotel Newton | 2,000 | 00.56 |
| Newton Home | 4,000 | 01.12 |
| Stoughton Hall | 4,000 | 01.12 |
| Female Help's Hall | 4,000 | 01.12 |
| Male Help's Hall | 2,000 | 00.56 |
| Total | 355,991 | 100.00 |

Table 4 is a combination of Tables 1, 2, and 3, and these percentages are employed in computing the amount of the *entire* power plant expense to be charged to each building, the cost of the labor employed in the power house, and of all supplies bearing the same relation to each building as the fuel expense.

TABLE 4. COAL CONSUMED

| | Heating | Power and Lighting | Live Steam | Total | Per cent |
|---|---|---|---|---|---|
| Main Hospital | 144,701 | 13,788 | 269,991 | 428,480 | 52.67 |
| Robinson Bldg. | 93,526 | 7,200 | 40,000 | 140,726 | 17.26 |
| Evans Bldg. | 81,088 | 3,300 | 20,000 | 104,388 | 12.80 |
| Vose Hall | 56,124 | 1,400 | 10,000 | 67,564 | 08.29 |
| Hotel Newton | 24,920 | 240 | 2,000 | 27,160 | 03.34 |
| Newton Home | 10,760 | 840 | 4,000 | 15,600 | 01.91 |
| Stoughton Hall | 9,942 | 720 | 4,000 | 14,662 | 01.80 |
| Female Help | 9,340 | 720 | 4,000 | 14,060 | 01.74 |
| Male Help | .... | 360 | 2,000 | 2,360 | 00.29 |
| Total | 430,401 | 28,608 | 355,991 | 815,000 | 100.00 |

For more exact accounting in subsequent months similar tables have been prepared for each, the amount of coal required for the heating month per square foot of radiation having been determined in accordance with Table 5.

TABLE 5. MONTHLY PERCENTAGE OF SEASON'S HEATING DEMAND

| | | | |
|---|---|---|---|
| January | 18.62 | July | .00 |
| February | 17.37 | August | .00 |
| March | 14.68 | September | .00 |
| April | 10.31 | October | 7.09 |
| May | 3.29 | November | 10.76 |
| June | .00 | December | 17.88 |

As the consumption for heating during those months in which all the exhaust steam could be profitably employed varied but little, three tables, one for the non-heating months, one for those in which but part of the

exhaust steam can be used, and one for the winter months, would practically serve as well; or even a single table giving the coal consumption for the entire year, as Table 6, may be used.

TABLE 6. YEARLY CONSUMPTION OF COAL IN POUNDS

| | Heat | Light and Power | Live Steam | Total | Per cent |
|---|---|---|---|---|---|
| Main Hospital | 777,126 | 507,415 | 3,144,151 | 4,428,692 | 58.97 |
| Robinson Building | 502,289 | 264,973 | 465,923 | 1,233,185 | 16.42 |
| Evans Building | 435,487 | 121,169 | 232,547 | 789,203 | 10.51 |
| Vose Hall | 301,419 | 53,057 | 116,896 | 471,372 | 6.27 |
| Hotel Newton | 133,835 | 8,843 | 23,213 | 165,891 | 2.21 |
| Newton Home | 57,787 | 30,950 | 46,426 | 135,163 | 1.80 |
| Stoughton Hall | 53,396 | 26,529 | 46,426 | 126,351 | 1.69 |
| Female Help | 50,161 | 26,529 | 46,426 | 123,116 | 1.64 |
| Male Help | ..... | 13,264 | 23,213 | 36,477 | .49 |
| Total | 2,311,500 | 1,052,729 | 4,145,221 | 7,509,450 | 100.00 |

Note.—In this table the amount of coal assigned to the production of electric power and light ranges from 1.2 pounds to 8 pounds per kilowatt hour.

VALUE OF ACCOUNTING METHODS

The value of a systematic accounting of power plant operating costs is especially urged because of the possibilities it offers as a means of promoting economies in the various departments of the hospital, especially when the exact method of accounting is used.

It is stating it mildly to say that the intelligent use of such a system would effect economies in any and every hospital sufficient to pay, yearly, the cost of installing all of the necessary meters and the cost of establishing and maintaining the accounting system.

The installation of boiler room scales and boiler feed water measuring devices alone has been known to increase the operating efficiency of a boiler plant from a standard of 51 per cent to 71 per cent, representing a fuel economy of 40 per cent.

Departmental wastes, especially in the laundry and kitchen, are proverbial. How else, than by such a system as proposed above, can they be checked?

A record of the cost per thousand pieces or per hundred pounds of laundry work would provide a constant measure of efficiency in the operation of the laundry.

The exact determination of the cost of cooking, per meal or per patient, would serve a similar end.

The collection of further data may serve to modify and improve the plan herein proposed. The authors would appreciate suggestions and data of help in developing and improving the plan offered.

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### Hospital Bed Transformed Into Racing Car

His indomitable sense of humor kept him up. He had the worst fracture in the ward. But he knew cars from Alfalfa to Omaha, as O. Henry would observe. Gasoline was his middle name. When they put a frame over the foot of his bed to keep the covers from touching his leg the white sheets formed a hood, unmistakably of a long, low racing car—white with gold trimmings—"the kind ya drive sittin' on the back o' ya neck," he explained. He was challenging De Palma at Indianapolis. Humoring him, the Red Cross man brought him a klaxon, whose stentorian presence caused more than one nurse that passed his bed to stop suddenly and, clutching her medicine bottles, look quickly about her with scared eyes, to the huge amusement of the ward.

"Little girls like you oughtn't to cross the street all by y'r lonely, where nasty automobiles can run over ya!" he teased.

The make-believe chariot varied with his humor. Sometimes it was a Ford bouncing over tortuous roads, or it was a Rolls-Royce, absolutely!

Ward No. 7 was dull when he went, even if the klaxon did bring down anathemas upon his head.

## AGAIN—THE QUESTION OF FIRE HAZARDS IN HOSPITALS*

### Statistics Indicate Alarming Conditions—Necessity of Immediate and Effective Remedies—Extinguishers, Automatic Sprinklers, and Resistive Construction Suggested

By MISS LLOYD MARSHALL, Chairman of the Committee on Schools, Hospitals, and Penal Institutions, of the National Fire Protection Association, New York City.

The subject of fire conditions in hospitals and their remedies cannot be discussed too seriously or too much, since the situation is as grave as it is, and I am very glad, therefore, to discuss Mr. Crow's paper on Fire Hazards in Hospital Buildings.

What little I may add, will probably not be as popular as the opinion held by Mr. Crow for I think he has greatly underestimated the dangers of existing conditions, rather than overestimated them.

Yesterday I met a very interesting man who upon hearing that I was interested in the fire conditions in hospitals, said, "Well, I only hope you are not going to ride the hobby which 'so-and-so' has ridden for such a long time, are you?"

"What is his hobby?" I asked.

"He thinks," he replied, "every hazard will be corrected if fire walls are built dividing the floor area."

Another man recently asked me: "Are you going to cram sprinklers down our throats?"

And yet another man, who is not only a serious worker in the field of hospital service, but one who has given much thought and attention to bad and good fire conditions, said to me: "Our town had a large fire some time ago, and everybody got quite excited about having drills. A group of worthy citizens came to us requesting us to have regular drills, and, because I, too, thought it might do some good, I gladly agreed to try it. The effect of the gongs, low-toned though they were, and of seeing the nurses and other attendents quietly take their places, had a most serious effect on many of our patients. Mind you, they had been warned three or four times that a drill would occur at 1 o'clock, and that it would not mean a real fire. And yet in spite of that they were alarmed. No, drills are not safe or practical for hospital use."

Of course, I cannot omit entirely all mention of fire remedies, since, after all, the remedies are what we need in order to omit the fires.

America's hospital and asylum fire loss in 1917 was 607 buildings in which fires actually occurred. (The 1918 figures have not yet been compiled). Do you fully realize what it means to have 607 fires a year in hospitals and asylums? It means that we are averaging *eleven fires a week* throughout the year! And bear in mind, these 607 fires are only the reported ones and the fires in buildings which were insured. Since every building is not insured, and since many hospital authorities do not want to have it known that they have had a fire, the real total number of fires must go far beyond this figure.

We have throughout the county, 7,100 buildings, including all kinds, used as hospitals. Figuring the total number of yearly fires among the seven thousand buildings, again we see that we are having yearly one fire to every eleven buildings. This places hospitals in the same class as the most dangerous buildings which we have—cotton mills, oilcloth plants, and others which house dangerous occupations. (Continued on page 418.)

*This article is a discussion of Mr. Crow's paper on "Fire Hazards in Hospitals," which appeared in the October issue of THE MODERN HOSPITAL, p. 265.

Just what do these terrible figures really indicate? Are many lives actually lost? Are these 607 fires, large hospital fires? Last year there was a fire in the State Hospital for the Insane in Oklahoma, in which thirty-seven white men and one negro were burned to death! Last year in the Grey Nunnery in Montreal, fifty little children were cremated, and countless nuns and many wounded soldiers, returned from the great war, received horrible burns in doing heroic work to save as many lives as possible. Last February, fire destroyed a large hospital in Central Missouri—the only one of its kind—and the financial loss was $150,000. These are but three examples; of course, the entire list is much too long to quote, and my time is too limited to cite more cases.

This shocking condition should be changed as soon as possible—which means immediately. Hospital authorities should have an investigation of their buildings made by a fire prevention expert and should then take immediate steps to carry out his recommendations. Of course, I am not supposing that nothing has been done and that the hospital authorities are not interested in this vital question. It is because I know that they are interested and because the subject is so serious, that I am trying to bring out a few facts which may not be known generally.

For what does it mean to have eleven hospital fires a week? Even if no lives are lost, even if the financial loss is not great, it means that, weekly, we are placing a terrific nervous strain on patients, doctors, superintendents, and nurses! The Census Bureau gives the total number of patients in all hospitals in 1910 as a little under two million. This is another way of saying that, weekly, about two hundred thousand patients—to say nothing of doctors, nurses, superintendents, and all others working for them—are threatened with danger, shock, and exposure!

Besides this, every building used for such purposes is needed, and even a temporary cessation of this most humane work on earth is a loss impossible to estimate. Do we not owe our country as a whole, as well as our individual people, absolute safety while in our mind-and-body-strengthening institutions? We lost on the battlefields of France during the great war, about fifty thousand men. Yet, year after year, America kills fifteen thousand men, women, and little children by fires alone. In less than three and a half years, we will go beyond that war loss, and yet this life loss from fires will go on indefinitely if not stemmed by effective remedies.

You must know from your own experiences many of the plainest, the best known hazards, and in Mr. Crow's paper, the subject is most effectively covered. In his opinion, many of the buildings now used as hospitals and asylums are so poorly built and contain so many hazards that they should not be repaired, but should be completely torn down and replaced by modern, well equipped buildings. This is my opinion, too, but, unfortunately I know there are few boards of managers in such a financial position as to be able to make this possible. Funds are nearly always limited, and calls upon them are great.

Yet something should be done. Something must be done immediately. How can we retard fire, and so give a fairer chance at saving lives? How can we reduce the ever recurring eleven fires a week? You have heard already that fire escapes are of little good to hospitals. Indeed, I have heard an authority state that outside fire escapes are the sure evidence of bad conditions within. Besides, fire escapes are most impractical for hospital use.

If one fire wall (or possibly two) can be built to divide the floor area, that will save part of the building temporarily, perhaps permanently, and will help to save human life. If hand extinguishers can be purchased in sufficient quantities, and the entire staff instructed in their use and care, they, too, will help. Automatic sprinklers installed at least in the basements and attics of hospitals, where they act as soon as there is a fire, unquestionably will save lives and property. I do not agree with Mr. Crow as to the danger of having them in the wards, since even a deluge of water is certainly preferable to burning to death; and I am told the sprinkler heads open only one at a time as is proved necessary according to the extent of the fire.

Of course, the right and proper condition for every hospital is that it should be built entirely of fire-resistive material, with sprinklers in the basements and in the attics. The word "fire-resistive" is used rather than "fireproof," since the former is more nearly correct than the latter. All boards contemplating a new structure should not even consider any other than absolutely fire-resistive construction.

These are but a few suggestions repeating Mr. Crow's own thoughts. Like most limited advice, it is both superficial and unscientific. Only a Fire Prevention expert who has spent years in the study of this one subject is able to advise in any adequate kind of way.

I have prepared for distribution a short leaflet on these conditions, and I shall be glad to send it to any who may want it. I am Chairman of the Committee on Schools, Hospitals, and Penal Institutions of the National Fire Protection Association, which is doing everything in its power to awaken the country, especially the women, to the urgent need of fire protection for our public and private institutions. I am in communication with women all over the country, and if any hospital executive would like to get the backing of the women of his community, if he will write to me I shall be glad to do everything possible to stir them to cooperation. I may add that the women will be especially useful in arousing public sentiment, in raising funds for improvements, or for any other service which women perform so fearlessly. But obviously, the first step should come from the hospital authorities themselves. Let us all unite to make America's fine institutions safe for Americans!

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### Nurses in State Hospitals Complete Training

Nurses in the state hospitals in Illinois are now completing the training which was interrupted by the war. Among the courses is the one in psychiatric nursing at the Chicago State Hospital, Dunning. Graduates are eligible to appointment to high salaried positions in the state hosptials.

In each of the state hospitals there is being organized a two-year course for qualified nurses. This grade is not recognized by law and does not lead to registration, but it is thought it will be recognized by the next general assembly. A six-months training for all students in state hospitals has also been inaugurated.

During this month, in anticipation of a possible recurrence of the influenza epidemic, each state charitable institution is giving a short course to all employees in the proper care of the physically sick patients. Women from the adjoining communities are also interested in this course, two hundred from the city of Kankakee being enrolled at the Kankakee hospital.

In order to meet the requirement of the new state nursing law that applicants for training must have one year high school, the state hospital at Jacksonville has

opened a day school. The pupils pay half the cost, and the state pays the other half. The teacher is provided by the superintendent of the city high school, who acts as supervisor. The hospital furnishes the class room and arranges the work so that the young women will have time to attend the classes. There are twenty in the first class. If the experiment proves successful, the plan will be taken up by the other state institutions.

## HOW NATIONAL TUBERCULOSIS ASSOCIATION EXPANDS ITS SERVICE

### Rapid Growth Results in Affiliation of Work With Other Organizations and Public Establishment of Comprehensive Medical Service Latest Development

By H. A. PATTISON, M.D., Special Adviser on Tuberculosis, Federal Board for Vocational Education, Washington, D. C.

The National Tuberculosis Association has grown very rapidly since the beginning of the war. Its executive staff has practically doubled, with a consequent broadening of its service to take in affiliated organizations and the public. The latest expression of its growth is the establishment of a medical service with a supervisor and four assistants.

Among the activities of the service are the following:

1. A study of the general problems of medical and nursing education as they relate to tuberculosis. An effort will be made to outline more intensive courses of studies in tuberculosis for medical students and secure their introduction to medical schools.

2. The organization of schools of tuberculosis for general practitioners. These will be located as rapidly as there appears to be demand for them in various sections of the country where physicians may wish to go for a vacation period and at the same time get intensive instruction in the early diagnosis and treatment of pulmonary tuberculosis.

3. Several state tuberculosis associations have appointed medical field secretaries who travel about their respective states holding special clinics, consultation, and conferences. The possibilities of such service by physicians will be studied by the National Association, which will act as a clearing house of information.

4. A study of tuberculosis nursing problems will be made and every possible assistance offered in correlating the nursing activities of such groups as the National Organization for Public Health Nursing, the American Red Cross, state and local boards of health, and the tuberculosis associations.

5. There will be established an advisory service in connection with the latest phases of sanatorium and post-sanatorium care and treatment which have developed to such advantage in dealing with tuberculous cases in the military and naval service in the United States, Canada, and Europe—viz, occupational therapy, vocational training, and placement.

6. Advisory service will also be offered to individuals, municipalities, counties, or states that contemplate the location, planning, construction, and equipment of sanatoria. This latter service is a natural outgrowth of much that has already been carried on by the National Tuberculosis Association for some years. In 1911 the association caused to be prepared and issued a handbook on "Tuberculosis Hospital and Sanatorium Construction" which passed through three editions, the last dated 1914, and has proved of great value as a guide to those charged with the responsibility of providing sanatorium accomodations. But the evolution of the sanatorium is very rapid and the "latest" to-day may be nearly obsolete five years hence. The association, therefore, will attempt to keep abreast of developments throughout the country, and without fees offer advice as to the hundred and one problems which arise when a sanatorium, large or small, is to be built, equipped, and maintained. Such points will be considered as the advantages or otherwise of contiguity to a town, climate, altitude, nature of site and soil, water supply, sewerage disposal, general arrangement and grouping of buildings, requirements for administration, infirmary, laboratory, dining and kitchen service, heating, laundry, and workshops. Help in establishing open-air schools and dispensaries will also be offered.

7. Special educational work in one of the army sanatoriums for the tuberculous has already begun. Through the courtesy of the Surgeon General, the National Association is privileged to cooperate with the commanding officer at Oteen, N. C., in providing courses of lectures for the patients, corpsmen, nurses and reconstruction aides. They will be taught the fundamental facts of tuberculosis, and this information, it is believed, will make the patients better satisfied to remain in the army until the maximum improvement is gained, and better equipped to care for themselves and protect their families when discharged. Capt. Benjamin K. Hays has recently been discharged from the Medical Corps of the army and sent to Oteen by the National Association for this service.

Mr. Thomas B. Kidner, for more than three years, secretary of the Canadian Civil Re-establishment Commission and then loaned for a year by his government to the Federal Board for Vocational Education, has been engaged as Institutional Secretary.

Miss Mary E. Marshall comes to the Association after a broad public health nursing experience, as the Nursing Service Secretary, with the endorsement of both the National Organization of Public Health Nursing and the American Red Cross.

A Medical Field Secretary is yet to be appointed. Dr. H. A. Pattison, for the past two years Medical Field Secretary of the National Association and for eight months following the signing of the armistice loaned to the Federal Board for Vocational Education as special adviser on tuberculosis, will have supervision of the medical service.

### Combined Maternity Home and Children's Hostel

A new development with regard to maternity homes has been tried at Plymouth, and has met with so much success that an appeal is being made by Lady Beatty, Lady Maud Warrender, and Mrs. Mildmay to extend the benefits of the home and to enable naval maternity homes on similar lines to be erected at Portsmouth and Chatham. In addition to receiving the mother into the maternity home for her confinement, the younger children, whom of necessity the woman is unable to look after during the time she is in the home, are accommodated in a hostel near. It is estimated that the cost for the enlargement of the Plymouth branch will be £50,000, and £100,000 will be required to erect each of the institutions at the other two ports. The Navy League has promised to contribute £10,000 to each of the three ports, provided that £40,000 for each port is given by the public. In the appeal it is stated that "the Empire can acknowledge its debt to its sailors in no better way than by providing means whereby their wives can receive the best medical attention at the most critical moments of their lives, and whereby their children may receive proper care when their mothers are unable to give it."—*The Nursing Mirror.*

## OUT OF THE GRANDSTAND INTO THE GAME

### Competition in Recreational Contests Chief Aid in Helping Maimed Doughboys Overcome Handicaps—Even "Blinks" Need No Longer Occupy Bleachers

By CATHERINE OGLESBY, American Red Cross

The soldier-convalescent has been adopted by the Red Cross. The organization which has been active in stamping out typhus, cholera, and other epidemics dangerous to nations, has been solicited by the Surgeon-General to stop the progress of the epidemic "hospitalization," which is now spreading in military hospitals and which is so hazardous to the successful solution of the problem of physical and mental reconstruction challenging thousands of American youths.

The question of the convalescent has ever been a puzzling one to commanding officers and members of the medical and nursing staffs. Today the problem is greater than ever before. Fifty military hospitals are peopled with men sane and healthy, save that they have lost an arm, a leg, or eyesight. They want to shout, play, and throw cigarette stubs on the floor, for beneath their crash bathrobes still beats the irresistible, irresponsible, and impressionistic heart of the doughboy. At first their excess of virile spirits resents succumbing to "hospitalization," but their quick adaptability soon causes them to lapse into its characteristic lassitude, with an apathy toward progress and an unambitious view of life and industry.

Recreation is the cure afforded to this disease by the Red Cross. Passive entertainments, such as motion pictures, concerts, and theatricals have been conducted through the Red Cross convalescent houses for some time, but, about the time of the signing of the armistice, a plan for curative forms of recreation was adopted by the Surgeon-General and the Red Cross. The necessity of continuing passive entertainment was recognized, but the scope of recreational work was expanded.

A program, nation-wide, was planned by Dr. Elbert K. Fretwell, which provided for the introduction and direction of curative recreation in the reconstruction hospitals. The aim of the work was to initiate the patients into a desire for rapid recovery by arousing eagerness to overcome their handicap that they might become useful members of the army, navy, or citizen communities, capable of earning an independent livelihood; and to promote this end by awakening an *esprit de corps* in the institutions among the medical and nursing staff that they might be better fitted to perform their duties. The great goal was morale and its stimulation through active physical and occupational work.

Fig. 1. Instead of counting the cracks in the ceiling, the patients may now watch the movies.

The Red Cross Bureau of Military Relief placed two hundred trained recreational workers in the reconstruction hospitals, fifty band and orchestra leaders, fifty song leaders, fifty dramatic instructors, and fifty athletic directors. "Get out of the grandstand into the game" was

Fig. 2. The wheel-chair race of the much decorated jockeys.

their slogan, and to refusals of the patients, many of whom greeted the innovation with characteristic doughboy scepticism, they responded: "You may have lost your leg but you did not lose your courage, did you, Buddy? You're not 'out of luck' if you are in this. Get in the game!"

Competition was the secret of their success. At a certain hospital but forty enlisted for the games the first day of enrollment. Within two weeks the number was doubled, and at the end of six weeks 440 out of 600 patients were among the competitors.

The theory advanced in most modern recreation is to induce the component players to strive for a team spirit, for the success of the whole instead of for that of the individual. Recreation principles in the hospitals are directly opposite to these generally accepted theories. It is believed by the physical directors that the patients already have learned community spirit from the best and sternest of teachers, war. Their handicaps are individual, and they must, therefore, be eliminated by personal effort.

An especially fine system of competition was introduced in the Atlantic Division. Instead of having one game, the competition consisted of a series of games extending over a period of thirty days. Nineteen forms of recreation were included in the competition. The man scoring the highest in each of these was given a prize, and the winner of the highest total was presented with a gold watch. The prizes were of value relative to the amount of good the patients would obtain from the practice of the game.

The awarding of such prizes is generally made on a field day meet, and these gala occasions are red-letter days on the hospital calendar. All recreational pursuits may be seen on such days, as well as on holidays. On one such occasion at Fort McHenry, a one-armed baseball team won over a two-armed team each of whose members had one hand tied behind his back. At Fort Dodge a one-armed team played a one-legged team. Foot-ball is the favored sport of the one-legged men at Colonia, N. J. This is not played according to the popular conception of the game among persons who have a

complete assortment of arms and legs, however. Instead, a tennis net is stretched and over this the players try to kick the ball. Each time it goes over the net one point is scored, and twenty-one points constitute a game.

The amputation walk executed by one-legged men, is a popular game. This consists of walking a V-shaped track, picking up obstacles, stepping over articles. There is also the crutch race, and the wheel-chair race. The one-armed men are taken care of in dressing contests. In a recent contest of this sort one boy took off and

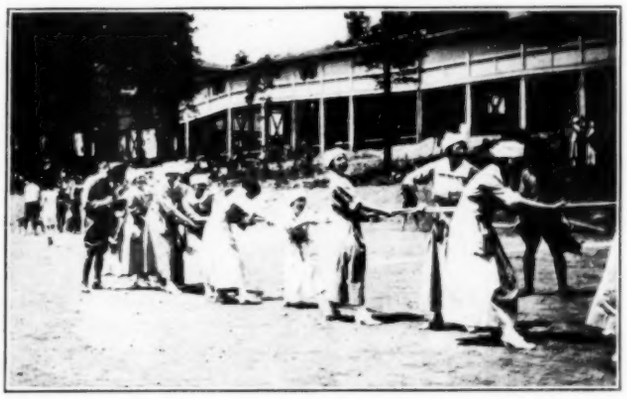

Fig. 3. Even the nurses and aides have their tugs of war.

wrapped his spiral leggings in three minutes, a task which would rival the skill of a two-armed man.

Even the "blinks" have a merry time. "Blink" is the doughboy translation of blind. No longer do they sit alone in the valley of the shadow, awaiting the whims of friends for entertainment. The Red Cross has ended that epoch. Now the "blinks" row, swim, play pool, billiards, bowl, and write letters on typewriters. The "lungers" no longer spend hours reading on the symptoms of their disease; and the shell-shocked indulge in competitive ball teams, baseball, which rouses them from concentrated apathy and transforms them into regular rooters.

"Show me" is the attitude of the Yank toward those who would encourage him to strive toward accomplishment of the seemingly impossible. Because of the doughboys' doubting attitude, the Red Cross employed Charles L. Wiebell as an athletic director for amputation cases. He is now at the hospital in Colonia, N. J., devoted entirely to this kind of cases. Wiebell has two wooden legs. He lost both his legs as a result of a railroad accident which occurred when he was a youth of twenty. But he was determined that he would not become a member of the soliciting street fraternity who haunt street corners awaiting the generosity of passers-by. After four weeks in the hospital he went forth in a wheel chair. Because of the personal experience which has assisted him in his knowledge of adjustments necessary to the comfort or efficiency of handicapped men, his work is extremely valuable at Colonia.

He has worked as a motorman on street cars in Philadelphia, and has been a supervisor of fifty-six looms in a silk factory. For nine years he was a traveling salesman, and carried two heavy grips about the country. There is no form of sport in which he cannot engage. He can even dance. Roller skating is the only accomplishment which has been beyond his powers. His triumph over his handicap is a constant stimulant to the boys who come to him with such remarks as "Only hitting on two cylinders, Cap." They shake their wooden legs with humorous appreciation of the queer sounds, full of faith that their athletic director will find a way for them to take part in the games.

This ability to laugh in the face of opposing fate will be found by the ex-soldier his most precious possession when he re-enters civilian life. Through play the sporting instinct, innate in every American, is being developed. Every doughboy has a splendid capacity for sportsmanship, and this dauntless defiance of foe and fate, stimulated by games, is enabling the blind and maimed to prepare themselves for their life and work. In the army they learned the value of morale; now they are learning that it is not a quality peculiar to the military. It is needed not only in the theatrical moments of life but in the every-day round of monotonous duties, and the recreation which the Red Cross gives as a cure for "hospitalization" is conducive to the cultivation of that will to win, grit to endure, and courage to laugh which is known collectively as "morale."

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### Work of the Ranyard Mission Nurses

Close to twelve thousand cases were cared for during the year 1918 by the eighty-four Sisters and nurses who comprise the staff of the Nursing Branch of the Ranyard Mission, London, one of the oldest of the voluntary nursing associations in England, founded in 1868.

These nurses attend patients of any denomination, but only those who are under the doctor's care. A complete course of training is required, which is supplemented by six months' work under an experienced Sister at the Central Hostel before the nurse is sent to the London district.

The work is supported by voluntary contributions so that salaries are not liberal—about 130 pounds a year for equipment and maintenance.

Fig. 4. Why worry about losing both legs when you can "shin" the pole anyhow?

## THE STANDARDIZATION OF TUBERCULOSIS SANATORIUMS

### Preliminary Draft of Report Presented by Committee Appointed by Mississippi Valley Conference—Urges Hospital Executives to Prepare for Inevitable Classification and Standardization

The Committee on Standardization of Sanatoriums, appointed by the president of the sanatorium section of the Mississippi Valley Conference last year, has carefully considered the subject matter, and, after a consultation with similar committees serving the American Sanatorium Association and the National Tuberculosis Association, desires to present its report.

It appears that in the near future the tuberculosis sanatoriums of this country will be classified according to fixed standards. Those of us interested in sanatorium construction and management may well anticipate this classification by others and make efforts now to present the proper showing when the examinations are made.

The committee feels that standards are necessary, and that a just classification is helpful to each member. They should assist many in acquiring improvements for the future which in the past have been denied.

The more the committee has studied this matter, the greater importance it has attached to a well-rounded and complete anti-tuberculosis program calling attention to the tendency of the public to rely too much upon the sanatorium alone for results which can be obtained only by a carefully co-ordinated and complete group of agencies, such as the visiting nurse, the dispensary, the follow-up system, and educational activities.

#### PRELIMINARY ORGANIZATION AND SUPERVISION

It is recommended that the immediate board of trustees shall consist of three or five members, especially qualified to serve, who shall be appointed by the county board or other official agencies, but who are not included in the personnel of the county board. At least one member of the board of trustees should be a licensed physician. Central state supervision over the construction and equipment of sanatoriums, and over matters pertaining to general management are recommended.

#### LOCATION AND SITE

1. It is recommended that a site be selected bordering on the city limits, with efficient transportation facilities (such as trolley or railroad), and also with city sewerage, gas, electric light, and telephone conveniently available. A location several miles from the nearest center of population or transportation facilities is especially condemned.

2. The surroundings should be free from objectionable features such as cemeteries, certain industrial occupations, etc.

3. Sufficient property should be purchased to permit of proper location of buildings, provide recreation space for patients and the establishment, if possible, of a farm colony for ex-patients. The committee advises against the purchase of farm property with the intention of using it to produce an income for the institution through garden truck, etc., by means of patient labor. The establishment of a farm and a dairy are not recommended. Small truck gardening and poultry establishments are permissible in connection with the industrial occupation department.

#### GENERAL CONSTRUCTION

1. It is recommended that infirmary, or bed patients be housed in two-story, fire-proof buildings, and that the administration building also be fire-proof. Ambulant patients may be housed in units of sixteen in one-story buildings or thirty-two in two-story buildings, the central or administration portion being fire-proof where the buildings are two stories in height. Canvas construction is not advised.

Twenty per cent of the total capacity of the institution should be especially arranged for the accommodation of acutely ill patients and 30 per cent for the care of other advanced cases not acutely ill, but still non-ambulant. Forty per cent of the capacity should be provided for ambulatory patients. Especially planned quarters for children acutely ill from tuberculosis and classified as open cases should be provided. Separate quarters for children should be arranged for closed cases, and for preventorium cases.

#### SPECIAL CONSTRUCTION

1. Each institution irrespective of size, should provide a room or rooms for the physical examination of patients, consultations, treatment of nose and throat, minor surgery, and other treatments, for laboratory use, and, where possible, for x-ray. The committee especially recommends a completely equipped department for the treatment of nose and throat conditions in all institutions. Every institution of 100 beds or more should be provided with a complete x-ray equipment.

2. Special planning is necessary for the proper housing of staff and employees. A separate building for each is best. If impossible to provide quarters in separate buildings, staff and employees should be housed in wings not containing patients, but never in basement rooms. Nurses should be provided with pleasant, comfortable quarters in which the hospital or institution atmosphere is eliminated, sufficiently removed from patients to permit of complete relaxation when off duty. A recreation or social room and facilities for outdoor amusements should be provided for both nurses and employees.

3. A recreation or social room should be provided for patients in all institutions. The committee is of the opinion that little has been done in the average sanatorium toward eliminating the institutional atmosphere so objectionable to patients whose residence is desirable for several months.

In small institutions, provisions for industrial occupation or occupational therapy may, in a limited degree, be included in the recreation quarters. In larger institutions special provision should be made for the proper housing of the department of industrial therapy, a department which has its place, and which should be established in every sanatorium.

4. In the opinion of the committee, staff dining rooms are neither required nor desirable in smaller institutions. In larger institutions, where numbers of patients are cared for, and where non-professional employees are present (such as stenographers, clerks, bookkeepers, wives and children of staff) it is wise to provide dining rooms separate from those used by patients. In all cases, servants should have and use a separate dining room.

5. A room should be provided for the care of the dead which can be reached by attendants with the least possible disturbance to patients, and from which bodies can be removed readily and inconspicuously.

#### MEDICAL AND NURSING SERVICE

1. The medical head of each sanatorium should be a specially trained expert in the institutional treatment and management of tuberculosis patients, and he should devote his entire time to the affairs of the institution. In

instances where small sanatoriums find difficulty in procuring expert medical services, the committee recommends the Minnesota plan of dividing the full time of a physician between two closely located sanatoriums. A resident physician should be provided for each fifty patients.

2. A graduate nurse experienced in sanatorium methods should be in charge of the nursing department. A nurse should be maintained for each ten patients in the institution. Non-graduate nurses may be employed under the supervision of a graduate nurse and the services of a night nurse should be available in every institution.

All institutions of moderate size should have a dietitian. In small institutions the head nurse may assume such duties.

3. It is desirable to procure the services of a steward in an institution of seventy-five patients and over. He should have charge of the purchase of food supplies and their storage, under the supervision of the superintendent. He should have active charge of the culinary department and of all employees engaged in it.

A housekeeper should be employed in an institution of seventy-five patients or over. In smaller institutions her duties can be performed by the head nurse.

#### TRAINING SCHOOL FOR NURSES

It is the duty of all large tuberculosis sanatoriums to maintain training schools for nurses, if possible, in cooperation with nearby general hospitals. Former patients whose physical conditions warrant, may be admitted as student nurses.

#### INDUSTRIAL SHOPS AND FARM COLONY

The committee desires to urge the establishment of industrial shops and farm colonies for the employment of ex-sanatorium patients, under proper supervision. The committee holds the view that one of the weakest links in the present campaign against tuberculosis is the management, or lack of management, of ex-patients immediately after they are discharged from the sanatorium.

The waste of public funds may, in a large degree, be reduced by the avoidance of relapse in ex-patients. This can be accomplished by giving them proper employment under strict and efficient supervision. The farm colony affords much of value towards solving the problem.

#### PATIENT LABOR

Large sanatoriums should develop a department of vocational training for the benefit of those advised to follow new occupations after discharge.

While under treatment for active tuberculosis, and before such a degree of improvement has been attained as to permit of occupation in the industrial shops or farm colony, the employment of patient labor as an economical consideration in the management of the sanatorium, is strongly opposed. Permission may be given patients to carry out any hospital duties, provided the medical officer is satisfied that it will have no deleterious effect. Occupational therapy under proper supervision, for its psychic effect, is approved.

The establishment of free tuberculosis clinics, and the maintenance of full-time visiting nurse service, by means of which cases of tuberculosis may be discovered and admitted to the institutions, and discharged patients or ex-patients may be kept under proper supervision, is urged as a public health measure second to none in importance in our campaign against tuberculosis. This service should be a direct part of the activities of the sanatorium or in close cooperation with it.

ROBINSON BOSWORTH, Chairman,
GEORGE T. PALMER,
E. R. VAN DER SLICE.

## FULHAM HOSPITAL FOR BABIES ONLY

### Tiny Ones of London Slums Cared for in Bright, Cheerful Quarters—Building and Part of Furnishings Donated —Need of More Such Institutions Great

Sick babies of the London slums who heretofore have had very little done to alleviate their sufferings are coming, by degrees, into their heritage, says the *British Journal of Nursing*. A hospital devoted solely to their interests has been opened recently at Fulham. For the present, only those afflicted with summer diarrhoea are received, but later all classes of medical cases will be admitted.

Funds for the support of the hospital are derived partly from the Borough Council and the Ministry of Health, the remainder being raised by private solicitation. The building and part of the furnishings were donated. Twenty-four infants can be accommodated at one time.

The principal ward was originally the billiard room, an additional story built over it affording bright, comfortable quarters for the staff. The wards are charming both from the esthetic and the practical point of view. Light, air, and cheerfulness abound. The walls are tiled in white with green dado to within about four feet of the ceiling, while the frieze above is of warm cream enamel. The principal ward has French windows opening into the garden.

The cots are black, but the tiny bassinets which stand in the center of the wards are exceedingly dainty in their inexpensive white draperies. The little coverlets, of fine white butter muslin, are finished with a bow of ribbon at the junction of the curtains. The window curtains are of white, coarse-mesh net.

The useful little glass-topped lockers are of white enamel, as are also the headboards which hang on the ends of the cots. Bamboo screens draped with light blue checked gingham are attractive and uncommon adjuncts.

An infant's enamel bath is located in one corner of the ward, and basins provided with both hot and cold water are a great convenience for the nurses.

The babies are clothed in three simple knitted garments —vest, jacket, and overalls.

There is as yet no resident medical officer, but the tiny patients are given medical attention daily, or oftener if necessary.

Many more of these hospitals are sadly needed in the poorer districts, and it is believed that the movement which has been inaugurated at Fulham will progress until thousands of tiny sufferers will be benefited.

### Where a Color Line Is Not Drawn

One of our brand-new babies was fading away into a tiny white shadow because his little mother did not have enough milk to give him, says *The Bulletin of the New York Nursery and Child's Hospital*, and all the special formulae and even expressed breast milk failed to make him gain. It just didn't appeal to him, that was all, and he refused to take it. Then someone thought of one of our colored mothers who had more than enough for her own curly-headed little girl.

"Sure Ah'd be more dan glad to nuss dat baby," she said, when the little mother offered to pay her anything she asked if she would act as foster mother to her child; "but please doan say nothin' to me about pay. Ah'd be jest too happy to do anything to help that poor li'l' white lamb." And so little Tommy has been gaining one or two ounces every day, and gradually each day a little more color and life is creeping back into his little white, pinched face.

## CONSULTANT CRITICIZES PLAN OF WALLUM LAKE SANATORIUM

### Questions Soundness of Doctor Barnes' Theory of Economy—Thinks Low Unit Cost Was Secured at Expense of More Desirable Features

In relation to Wallum Lake Tuberculosis Hospital for advanced cases, we believe the text accompanying the plans describes many admirable innnovations and arrangements, but we consider it our duty to call the attention of builders to a number of things which we think they should weigh most carefully before adopting them for sanatoriums they may be designing.

It would seem to one who has been confined to a bed by illness for only a few days in his life that it is much more restful and satisfying to be close to the ground, to see the nearby flowers, shrubbery, and lawn, and to feel that one could go to them without a great effort than it is to be several stories above ground, with only a distant view of the common objects for which one longs when confined by illness.

It would seem that a state institution should not be cramped for ground space and that the state or municipality should not be compelled to build a high building. The lower cost of one-story buildings just about offsets the cost of connecting corridors; but the cost of operation (heating, up-keep, and the like) of one-story buildings and connecting corridors is probably greater than that of a single multi-story building.

The large wards, which are similar to the early case or shack type wards, would not meet the approval of a majority of the directors of sanatoriums, for the treatment of advanced cases. Notwithstanding the fact that the windows can be opened in the two-bed wards, they are very likely to be closed in stormy weather, with the result that two patients will be confined in a room having approximately only six hundred cubic feet, which is but about one-half the contents required by many municipal and state regulations for one patient.

It is very questionable if three single bed rooms out of a total of 153 beds are sufficient for this kind of a hospital.

The accommodations for employees are excellent and make good use of valuable space which must be created for the support and proper elevation of the upper stories, and which could not well be used for patients. The employees' quarters seem commodious when compared with the twenty-five-patient, locker, and toilet rooms.

The dining room is, presumably, the only recreation room. The reasons for the omission of a recreation room would be interesting.

The locker room and lavatory are too small for eighteen patients unless all cases are bed-ridden, in which case it would be better to have the lavatory adjoin the wards and the locker room beyond. If a locker room is not used as a dressing room, there is no object in having the unobstructed floor space. It could be three or four feet narrower.

The statement that the cost per bed was $735 is based on an erroneous assumption. Doctor Barnes assumes that, inasmuch as three floors are occupied by patients, and one is used for help, waiting, blanket, truck, x-ray, operating, and clock rooms, also doctors' offices, autopsy, morgue and laboratory, three-fourths of the cost can be charged to patients' beds and one-fourth to other services. This does not seem a fair accounting, for all of the rooms named are a part of any hospital, and the portion of the basement occupied by these rooms should not be deducted. Neither should all of the portion occupied by help be omitted. It would be impossible to build the three upper stories without sub-grade walls, and, as it would not be desirable to place the lower patients' floor on the ground level, only a comparatively small part of the cost should be deducted on this account. A more equitable basis of arriving at a unit cost would be to assume that it costs as much to create the space and accommodations for an employee's bed as it does to create a patient's bed, and to count all of the beds, including those for help as well as those for employees.

Unit costs are generally based on cost of building without furnishing. By deducting the furnishing items in Dr. Barnes' statement, we arrive at $135,928.21 as the cost of the building proper. We also find from the plans that the cubic contents of the building are 298,500 cubic feet. This makes the unit cost 45.5 cents per cubic foot, which is not exceptionally low at the prices of labor and material today.

Taking the same cost and dividing it by 173 beds, gives $786.71 as the cost per bed; but this seemingly low cost is obviously explained by the small cubic contents of the whole building, per bed, namely, 1,725 cubic feet, which is one-half of the unit contents generally accepted. It is also obvious that, if the building contained double its cubic contents and the same number of beds, the cost per bed would be almost double.

The low cost has been obtained at the expense of extreme limitation of space and accommodations per patient.

## DOCTOR BARNES REPLIES TO CONSULTANT'S CRITICISMS

### Defends Original Plan On All Points to Which Objection Is Made—Adds Own Criticism on Features Which He Thinks Might Be Improved

In estimating the value of the above criticisms of Wallum Lake Sanatorium, it is proper to consider the following:

*Ventilation of Rooms*—Laws establishing standards of cubic feet per patient have value if applied to schools, churches, general hospitals, or any buildings to be used with closed windows; but they need great modification if applied to buildings of the porch or shack type or to those operated with plenty of open windows, as are sanatoriums or hospitals for consumptives. It is the floor space and not the cubic capacity of a porch that needs to be figured. It is obvious to anyone that better air can be obtained in a small room with the windows open than in a room several times larger with the windows closed. Concerning the ventilation of the two-bed rooms, it may be of interest to note that there has not yet been a storm this spring or summer requiring the closure of both windows in any room. We have no record of last winter, but the head nurse on the ward estimates that it was necessary to close both windows in the rooms four times last winter and the orderly estimates six times. If we accept the maximum, add two for possible closures this fall and assume that they must be closed twelve hours at each storm (which is greatly in excess of the fact), these room windows can be opened 362 days out of 365, or over 99 per cent of the time. It is almost never necessary to close the window at the foot of the bed if the awning is put down.

*Recreation Room*—The dining room is available six hours daily for reading, games, phonograph and piano music and moving pictures. It is neither luxurious nor stylish to use a dining room as a recreation room, but

this dining room furnishes all essentials for bedridden cases.

*Size of Locker Rooms*—The size of the east ward locker and bathrooms is just right, as shown by experience; but the west ward bathroom, although of greater area, should have been two or three feet wider than it is because the narrower width does not permit as advantageous placing of equipment. These locker rooms were designed for bed cases and would not be large enough for dressing rooms for wards in which the majority of the patients were ambulant.

*Location of Bathrooms*—Were the bathrooms rather than the locker rooms next to the ward, some steps would be saved, as the bathroom is used more; but it is doubtful whether this change would be better because the steam, odor, etc., which are often present in a bathroom make it unpleasant for the eighteen ward patients to pass through that room to get to their lockers; also there is less risk of freezing the plumbing in zero weather if the locker room is next the open ward. About 20 per cent of the room patients, though feeble, prefer to go to the bathroom which is nearer for them as at present located.

*Wards or Rooms?*—Our experience shows that 25 to 30 per cent of chronic febrile and incurable cases are unable to go to the bathrooms and should therefore be in rooms even though the patients themselves, as is usually the case, prefer to remain on the wards. Of the 30 per cent of cases in rooms, how many should be in single rooms and how many in rooms having two beds? My own belief is that two or three is the right number of single rooms for this floor.

If many cases of bone or joint tuberculosis should be admitted, or if patients with lung abscess, pyothorax, gangrene and bronchietasis are treated, the proportion of single rooms should be increased as these cases are usually offensive. If the patients are people of education and refinement who appreciate and enjoy privacy, the number of single rooms should be proportionately increased. One patient may and often does annoy another by coughing, moaning, vomiting, bad odor, moribund conditions, diarrhoea, and mental peculiarity, and the patient asks for a different room-mate. It is true the patients wish agreeable companions, but, after having good and bad companions for months, over 90 per cent of them would rather take pot-luck and have some companion than none at all. Of course, if these patients were obliged to have offensive room-mates for months at a time (which is never the case), they might prefer single rooms. As one of the chief aims of a hospital for incurable consumptives should be to keep the patients contented, it is well to consider in detail what the patients think in regard to wards and rooms. I personally interviewed the seventy-nine patients of Wards One and Two. Of 52 patients on the 18-bed wards, 49 (or 94 per cent) preferred the 18-bed ward to single rooms. Of 27 patients in the rooms, 25 (or 92 per cent) preferred a double bedroom to a single bedroom. Of the 79 patients, 74 (or 93 per cent) objected to being put into single bedrooms.

Why are the vast majority of consumptives of the working classes unhappy in single rooms? The reasons for preferring open wards to rooms and double rooms to single rooms given the writer by the seventy-four patients above referred to may be summarized as follows: The ward seems brighter, livelier, it has music, more people are coming and going, the other patients are good company and pleasant to talk with, there is fun, and the "time passes quickly." The objections to the single rooms are that they cause patients "to think too much," "to brood," to "worry," to be "nervous," and the patients are "too lonesome." One patient who had been alone in a room in another hospital for several weeks told me that it was like solitary confinement in a prison.

*Multi-Storied Buildings.*—The objections against multi-storied or high buildings on state or municipal grounds would be well taken if applied to sky scrapers, but as a person standing on the top ward floor of this hospital has his eyes only thirty-three feet above the ground, it seems hardly correct to speak of a "distant view of common objects" such as flowers, shrubbery, etc.

*One-Story Buildings*—It is not admitted that a one-story building is cheaper per hospital bed than a two-story building, if the two buildings are equally well constructed. When our children's ward was built here in 1915, we cut the expense almost in half, as shown by actual bids, by redrawing the plans so that two wards on one story were put the above each other in a two-story building. Of course, the materials have to be somewhat stronger, and the labor of placing materials in position slightly more in a multi-storied building, but this does not begin to counter-balance the great extravagance of providing a roof, cellar, and foundation for one story instead of for two, three or four.

*Cost Per Bed*—In computing the cost of the patients' quarters, I deducted one-fourth of the cost, as one-fourth of the building is devoted to employees and administration. An objection made against deducting this one-fourth of the building expense for the basement floor is that the doctor's and the dentist's offices, the autopsy, morgue, laboratory, waiting, blanket, trunk, x-ray, and operating rooms are a part of any hospital. It is true that all these rooms are part of any hospital, but it is not true that it is necessary to build these rooms every time an institution erects a new ward building. If you start to build an entirely new institution you expect to do this, but if they were built every time new hospital wards were added to an old plant, it would be senseless duplication. Is it not then obviously unfair to charge up these rooms in computing the cost of patients' quarters?

It is suggested that employees' beds be added to the patients' beds in order to find the unit cost per bed. From the space used for the laboratory, x-ray, and other rooms, fifteen additional employees' rooms could have been obtained, or a total of thirty-three employees' beds, which added to the 153 patients' beds, gives a total of 186 beds. Using the figure of the one who reviewed my article $136,928.21 as the cost of the building proper, the unit cost per bed would be $730. Using the figure $132,970.69, which I consider the cost of the building proper, the unit cost per bed was $714.

Objection is also made that "it would be impossible to build these upper stories without sub-grade walls." True; but it would be equally impossible to build the employees' basement floor without a roof, which is charged to the patients' quarters. I did not claim that patients' quarters and employees' quarters could be built separately for this sum but letting the walls of the employees' quarters support the wards and the wards furnish a roof for the employees' quarters, we got them both for the sum stated, the patients' quarters costing only about three-fourths of the total.

*Small Cubic Capacity Per Bed*—The reviewer of my article rightly concludes that the low cost of this building per bed is explained by the small cubic contents of the whole building per bed, which is only one-half of the

capacity generally accepted. The cubic contents of a whole hospital building is often made up of many spaces which do not add either to the well-being of the patient or to the convenience of the work, such as little-used cellars or basements, attic spaces, connecting corridors, long tunnels, unnecessary height between floors, etc. If these waste spaces are ruthlessly cut out or utilized, and if someone has the time and zeal to put endless labor into figuring the floor space needed for each article of equipment to go into each service or unit and the amount of space which is sufficient—but not a bit more than sufficient—to do the work conveniently (someone must do this who knows more about the work to be performed than the architect), he will, if he survives, see an enormous cutting down of the cubic capacity of the hospital as a whole from the usual plans submitted.

### The Author's Criticisms

Were I again given this same hospital building problem, I would make the following changes:

1. Add two feet to the length of the rear extension so that the west bathroom and the examination room would be two feet wider.
2. Obtain money for the above change by shortening the tunnel one-fourth ($1,250 saved) which would still leave 150 feet intervening between the new hospital and the old service building.
3. Have three single rooms instead of one in each 51-bed ward by converting one double-bed room into two single rooms. The extra space required to convert two rooms into one could be obtained by narrowing the width of the rear extension corridor to six feet six inches, which would still be sufficient.
4. Change the location of the single rooms to the north end of the rear extension, so that the odor from an offensive patient would be far removed from the diet kitchen.
5. Increase the width of the stair treads nearly two inches by having the risers come up plumb instead of tapering three-fourths of an inch, and by having the treads overhang one and one-fourth inches.
6. Locate the laboratory in the east end of the east wing of the basement to avoid the grove which cannot be sacrificed but which shades the present laboratory location.
7. Have one long plate glass window in the operating room instead of three as at present.

The seven changes above outlined would not increase the total expense of the building. This hospital building proper cost $132,970. If it has only half as much cubic space as it should have, then the money was unwisely spent, but, if, as the author believes, it adequately fulfills its functions, $132,970 was saved to the state.

In working out these plans, I was often asked why so much trouble was taken to go over all the rooms to measure and remeasure and get the exact space needed to do the work. I was told to add on two or three feet everywhere to be sure to get enough for it was suggested that, even if it did cost more, the state was rich and should pay. I replied that there is a happy medium between misery and extravagance which is comfort. A private hospital for the rich should provide every luxury they wish which is not harmful and for which they are willing to pay, but a hospital supported by the public should have every comfort and convenience necessary for the best and most efficient care and treatment minus unnecessary luxuries of space, equipment, and service. Such luxuries can be provided only by limiting the number of beds or the amount of work done, which, in turn, would leave in misery other people in the state who need the care. The public will spend only about so much money, and to leave part in misery in order to give others luxuries is not a sound policy.

## HOSPITAL, MEDICAL AND SPECIAL MEETINGS

### MISSISSIPPI VALLEY CONFERENCE ON TUBERCULOSIS HOLDS SEVENTH ANNUAL CONVENTION

#### Important Topics in Tuberculosis Campaign and Lessons From the War Presented—Officers Elected For Coming Year

The seventh annual session of the Mississippi Valley Conference on Tuberculosis was held in Des Moines, Iowa, Sept. 22, 23 and 24, 1919. It was one of the best sectional conferences ever held, with a total of 500 registrants.

An address of welcome was given by Governor Harding, of Iowa, who briefly reviewed the tuberculosis campaign in his state, with the results to date.

Much interest was aroused by Julia Lathrop, chief of the Federal Children's Bureau, Washington, D. C., by her discussion of the subject, "Tuberculosis, An Evidence of the Need for Child Welfare Standards," and also by Owen R. Lovejoy, president of the National Conference on Social Work, New York City, by his paper on "Prevention."

Two subjects which were given special and detailed prominence throughout the session were "Occupational Therapy in the Treatment of Tuberculosis Patients," and "The Eradication of Tuberculosis Through Our Efforts With the Child, Plus the All-Important Education of the Public," presented, respectively, by Mr. Kidner, of the National Tuberculosis Association, and Miss Beatrice E. Lindberg, who represented the Advisory Commission of Minnesota.

Various "lessons from the war" were presented by different speakers, among whom were Dr. George T. Palmer, of Illinois; Major W. H. Watterson, M.D., Federal Board of Vocational Education, Washington, D. C.; Mr. Kidner, of New York; and Dr. Walter J. Marcley, of Minneapolis, Minn.

Another topic which was brought into prominence before the conference of the Mississippi Valley Sanatorium Association was that of nursing problems, suggested by a paper of that title by Dr. R. L. Williams, of the Wisconsin State Sanatorium, who advocated correspondence courses for the training of tuberculosis nurses in the smaller sanatoriums not capable of maintaining training schools. His idea was well received. "The Standardization of Sanatoriums," a report of the committee appointed at the 1918 conference, consisting of Dr. George T. Palmer, of Illinois; Dr. E. R. Vander Slice, of Michigan; and Dr. Robinson Bosworth, Chairman, St. Paul, Minn., is published on page 422 of this issue of THE MODERN HOSPITAL.

The officers of the Conference were: President, Sherman C. Kingsley, Cleveland; vice-president, W. J. Pettit, M.D., Ottawa, Ill.; and secretary-treasurer, Ralph J. Reed, Des Moines, Iowa.

The 1919 officers for the Mississippi Valley Sanatorium

Association were: President, Dr. H. V. Scarborough, superintendent of the State Sanatorium, Oakdale, Iowa; secretary-treasurer, Dr. E. B. Pierce, superintendent of the Michigan State Sanatorium, Howell, Mich.

The 1920 officers of the Mississippi Valley Conference on Tuberculosis are: President, Dr. John H. Peck, Des Moines, Iowa; vice-president, Dr. Walter McNab Miller, St. Louis, Mo.; and secretary-treasurer, Dr. A. T. Laird, superintendent of the Nopeming Sanatorium, Duluth, Minn.

The 1920 officers of the Mississippi Valley Sanatorium Association are: President, Dr. Robinson Bosworth, St. Paul, Minn.; vice-president, Dr. G. L. Bellis, Muirdale Sanatorium, Milwaukee, Wis.; and secretary-treasurer, Dr. E. B. Pierce, State Sanatorium, Howell, Mich.

The 1920 conference will be held in Duluth, Minn.

### First Aid in the West

There is a western legend of an Arizona bridegroom whose bride of a few months was missing. When asked where she was, he explained with tears in his eyes that the poor woman had been thrown from her horse and he had been compelled to shoot her because her leg was broken, although "she was a fine girl and he loved her considerable."

Fortunately it does not take such drastic incidents as this to demonstrate the need of first-aid instruction, and this phase of Red Cross work is daily being brought to the attention of the people in this country with compelling force, demonstrating the absolute necessity of first-aid knowledge in the every day conduct of life.

Accidents are unforeseen. The person versed in first-aid is a tower of strength at such moments, and his prompt action is frequently the means of saving life outright. The courses of instruction in first-aid hygiene, and home care of the sick, offered to the high schools by the American Red Cross, mean an opportunity for those upon whom the burdens of home nursing usually falls, to learn how to handle such cases with the least effort and maximum result.

This instruction is not in the form of haphazard lectures, but is carefully planned and as systematically taught as any other part of the curriculum. It forms an unique and opportune supplement to the high-school courses in physiology and anatomy and taken with these subjects will be all the more vivid to the young students.

Accidents will happen in industry and at home. Few of us escape, whether by actual experience or indirect association. Instruction is the sanest method of meeting such emergencies and the general needs of the injured should be part of the common education of each individual.

### Employment for Consumptives

In southern districts, as in Sussex, for example, light work in the woodlands—the utilization of undergrowth for fagots, hurdles, hop-poles and so on—has long been a staple industry. Fitter employment for consumptives with quiescent disease could hardly be got. Plate-laying on rural railway lines is another eminently favorable occupation. Consultation with labor authorities and with local employers should help in getting many of these poor men put in the way of a new start in life, useful not only to themselves but also to the national economy. For market gardening and allotment work, sure to figure in the shortest list of possible employments, will relieve the provision and transportation of food, which constitute now so great a burden upon our resources.—*The Hospital.*

## OCCUPATIONAL THERAPY, VOCATIONAL RE-EDUCATION AND INDUSTRIAL REHABILITATION

Conducted by DOUGLAS C. McMURTRIE, *Director Red Cross Institute for Crippled and Disabled Men* and MRS. CARL HENRY DAVIS, *Adviser in Occupational Therapy, Milwaukee-Downer College.*

### REHABILITATION OF THE ARMLESS

**Afflicted Ones Not Only Learn to Use Appliances Furnished But Invent New Substitutes for Hands—Many Achieve Economic Independence**

To fit a man who has lost an arm to earn a decent living is no easy task for the re-educator. As to the man who has lost both arms—these questions arise: Is it possible to do anything at all for him? Can he ever hope to become independent? Men with rare will power and ingenuity have, we know, risen above even such crushing afflictions, but what prospects are there for the average man? From France, where the soldier who has lost both arms is not an exceptional problem, comes an answer which is most encouraging. Dr. P. Chatin, who all during the war was one of the head physicians in the center for the provision of artificial limbs and re-education at Lyons (*Centre d'appareillage et de rééducation*), has recently published a booklet in which he recounts his experiences with twenty-five armless men sent to the center for appliances and training.[1] How their rehabilitation was achieved must interest all workers in the field.

"With time," Dr. Chatin tells us, "in which they can grow accustomed to their disability, with physiological compensations, with a little ingenuity, and much perseverance and determination, the *double-manchots* arrive at results which astonish us and themselves. When we tell an armless man who has just arrived at the hospital that that very evening he will feed himself and write to his family, he exhibits a wonder which becomes incredulity when we go on to say that his comrades who are similarly afflicted are writing on the typewriter and riding a bicycle. After a few days, however, he is doing everything just as others are and trying to work out combinations or devices for remedying his disability."

Many of the appliances used by the pupils as a substitute for hands are their own invention. Those given out at the center—by the government and the aid society cooperating—to every case of a double forearm amputation, include two Gillet work arms of aluminum, which have been found useful in agricultural work; two wooden hands with movable thumbs; a wrist-band of leather with loops of rubberized cloth; several tool-holders for agricultural work; and various accessory devices, such as a writing tablet with a device for holding the paper, a special table knife with a curved blade, a sponge, a razor, and a shaving-brush holder, snap buttons, and special hooks and eyes for clothes and shoes. Excellent illustra-

[1] Dr. P. Chatin in Etude sur la rééducation fonctionnelle et professionnelle des double-manchots. Lyon, 1918.

tions of these and of what men can do with their aid are collected at the back of the booklet.

A section on functional re-education—fitting the armless man to perform the acts of daily life—describes how he is taught to utilize his bare stump, simple wristbands of leather or rubber, or more complicated appliances with which to wash and dress himself, shave, eat, smoke, write, use a typewriter, and ride a bicycle. The section on vocational re-education relates the after-history of a number of pupils who have achieved economic independence. One has for more than a year been a successful teacher—his former profession; several are doing clerical work; one has gone back to his rope walk and is operating it with the aid of his family; one peddles vegetables; one wanted to be a lock-keeper but was refused the position, so he married and obtained the appointment for his wife. He turns the lever of the gates by means of the Julien agriculturists' arm, and intends to raise a little garden. Several former farm workers have been enabled to use the fork, spade, scythe, and other tools, but they cannot do a sufficient day's work to earn their living in that way. No armless man, says the author, should be directed to an occupation which will separate him from his family.

## RE-EDUCATION IN BOMBAY TECHNICAL SCHOOL

### Disabled Indian Soldiers Profit by Instruction in a Variety of Trades and Professions—Men Paid for Work Produced

The great usefulness and success of Queen Mary's Technical school for disabled Indian soldiers at Bombay are clearly evidenced in the first annual report of the school. Opened in May, 1917, the school drew its pupils during the first six months of its existence mainly from the Marine Lines Hospital, which supplies artificial limbs to the whole of the Indian army. Later, however, as the school began to be better known in the provinces, it received applications from native villages and from hospitals and regimental depots all over India. During the first year 223 men were admitted, the greater part toward the end of the year; at the time of the report, applications were being received at the rate of about twenty a month. Fifty-nine of the men have already passed the necessary examinations and have been granted school diplomas. Of these, twenty-nine secured employment through the school, the others preferring to go to their homes, where they were certain that they would easily find work.

The tastes of these bearded mystical soldiers in regard to a future occupation are curiously like those of the automobile-minded youths of the western armies. Most of them want to learn motor mechanics or, as a second choice, the operation of oil engines. Farming is unpopular; in fact, that department has had to be abolished. The hosiery department, where cotton, silk, and woolen socks and stockings are knitted by machine, contains a fair number of pupils; three trained men have purchased machines and are doing work on their own account at their homes. The engineering, or machine shopwork interests the men, but is not so popular as some other trades on account of the length of the course, which is from eighteen months to two years. Tailoring suffers for the same reason. Why only three men have been admitted to the cinema class, which in other places is usually one of the most crowded, is not clear.

Productive work is done in practically all of the shops, and the men are paid for the work they turn out.

For married men special quarters have been built where they can live with their families.

## MACHINE-KNITTING FOR THE CRIPPLED BLIND

### Machine-Knitting of Large Articles Found Profitable—Work Attracts Cripples as Well as Blind

One department of the hospital-school of the Permanent Blind Relief War Fund at Neuilly-sur-Seine is reported to be particularly successful. This is for teaching machine-knitting, not of socks and stockings, which have been found unprofitable, but of sweaters, jackets, children's and women's suits, and other large knitted articles. The department has a plant of thirty machines, which are now made in Switzerland and which cost, with accessories, about 1,500 francs each. It attracts pupils to its full capacity, as the work can be done by men with other disabilities besides their blindness—men with stiffened joints, arm amputations, and even double arm amputations. For operating the thirty machines, four women mechanic-teachers are employed; their task is to look after the machines, replenish yarn supplies, take work off and put it on the machines, occasionally help out a pupil in difficulty, and exercise general oversight of the work. Fifteen men have graduated from the knitting school after an apprenticeship of about three months and are reported to be earning a good living at the work in their homes.

The need of work within the powers of men who are both blind and otherwise disabled is strikingly shown by figures given out at the Neuilly school. Reports show that of 3,274 French soldiers blinded as the result of war injuries, one hundred have lost one arm, thirty-five have lost both arms, and of these a few have lost a leg.

## FITTING OF PROSTHETIC APPARATUS IMPORTANT

### American Type of Wooden Limb Generally Approved—Each Occupation Requires Special Design

As a clear and authoritative exposition of the anatomical, physiological, and practical conditions which an artificial arm or leg should fulfill, "Artificial Limbs," by Doctors Broca[1] and Ducroquet, translated and edited by R. C. Elmslie, will be valuable to the orthopedic specialist and others interested in this subject. Different materials and types of limbs are described. The American type of wooden limb is meeting with general approval, as it is light, strong, and silent. As the fitting of the prosthetic apparatus is of equal importance with the limb itself, the authors devote a large part of their attention to this factor, giving in detail methods of fitting and suspension for the various kinds of amputations. Care for the fitting should indeed begin with the amputation, owing to the advantage of the lateral over the terminal scar for purposes of prosthesis. Special notice is also bestowed on the use for which the limbs are designed, whether for workday or "Sunday" use, or for particular occupations. The "plumber's hand," for instance, consists of a pair of gas pliers, and ends in edges for cutting wires. A workman using an artificial "hand" would probably have another model more nearly resembling the real member to be screwed on for use in social life. The type of leg desirable for a man of sedentary occupation differs considerably from the one which should be used by a manual or agricultural laborer. For these reasons the authors emphasize the need of a man's determining what trade or profession he is to pursue before ordering his artificial limb. The last chapter of the book is given up to a brief

1. Broca, August and Ducroquet, authors of "Artificial Limbs," which was translated and edited by R. C. Elmslie, London, 1918.

but valuable discussion of general principles in the re-education of the disabled, emphasizing the necessity of such re-education being begun in each case as soon as possible, and the danger to the patient of sentimental pity in place of constructive help. Many line drawings and photographs illustrate the text clearly, if not handsomely.

## SERBIA'S CARE FOR HER DISABLED SOLDIERS

### Trades Which Will Be Useful in Homeland Being Taught —French Farmers in Role of Instructors

An interesting account of what Serbia has done for her disabled soldiers was contributed to the *Revue Interalliée pour l'Étude des Questions intéressant les Mutilés de la Guerre* of last January by Professor Agathonovitch, a member of the Serbian chamber and of the permanent Inter-Allied committee on the disabled.[1] He states that the first measure of relief for disabled soldiers in Serbia was a law granting tiny pensions to men wounded in the Turkish wars of 1876-1877. This was revised in 1886, after the Bulgarian war and again in 1914 after the two Balkan wars, which left in their train nearly 40,000 disabled men. The world war has made of Serbia a nation of disabled men, and the government realizes that one of its most important tasks is to care for their future. It is therefore preparing, in accordance with modern ideas, to provide the vocational training which will fit them to return to work.

As ninety per cent of the population live by agriculture, the Minister of Agriculture has been placed in charge of re-education. Serbian *mutilés* in France, by an arrangement between the governments, enjoy the same rights as French soldiers in the matter of functional and vocational re-education. The majority are placed for instruction with French farmers. Care is taken that those learning trades, learn the ones needed in Serbia and learn them thoroughly, for there is no division of labor there. For small merchants and traveling salesmen, the government has organized a practical commercial course at Aix-en-Provence, and for men who might hold small government positions a course in administration at Francheville. For vocational re-education in Serbia delivered, the government has ambitious plans. Schools will be organized—the teachers are already being selected and trained—women will be trained to make up for the lack of men, and the manufacture of artificial limbs, and the use of agricultural machinery will be taught.

### One in Fifteen Hundred an Epileptic

One is liable to forget that about one in every fifteen hundred persons in this country is an epileptic, and that the proportion is highest at the common recruiting age. The epileptic was particularly unfit to withstand the nervous stress of war. Yet an enormous number of mistakes have been made concerning this condition, even more regrettable for the unnecessary expense they have brought on the country. *Petit mal* was extremely likely to be overlooked, but by no means free from danger. Severe fits frequently developed. The patient was liable to mental aberration and to weakmindedness. Loss of consciousness may be but momentary or even incomplete, and the lesson for civil practice that our war experience teaches is that we should be more on the outlook for epilepsy and more careful in our occupational disposal of these cases.—*The Hospital.*

1. Agathonovitch. Ce que fait la Serbie pour ses invalides de guerre. *Revue Interalliée pour l'Etude des Questions intéressant les Mutilés de la Guerre*, Paris, 1919, ii, 1-16.

# DEPARTMENT OF NURSING

Conducted by CAROLYN E. GRAY, R.N., *Secretary, New York State Board of Nurse Examiners.*

Please address items of news and inquiries regarding Department of Nursing to CAROLYN E. GRAY, R.N., Secretary of the New York Board of Nurse Examiners, 135 E. 45th St., New York City.

## READJUSTMENTS WHICH TRAINING SCHOOLS AND NURSING DEPARTMENTS ARE FACING*

### Shortage of Both Graduate and Student Nurses a Serious Problem—Solution Lies in New Conception of Nurse by Community—How Cincinnati Has Reacted to the Situation

By LAURA R. LOGAN, A.B., R.N., Professor of Nursing and Health, and Director of the School of Nursing and Health, University of Cincinnati

Whether from the standpoint of the university or that of any other hospital, the readjustments which training schools and nursing departments are facing are pretty much the same. There are two problems which, together, we must solve. For one thing, we must effect such adjustments as are necessary to overcome the present shortage of graduate nurses proficient in teaching, in public health service, and in institutional management. This is a serious and an immediate problem from the point of view of boards of health, public schools, and, indeed, of all institutions and agencies concerned with the prevention of disease, health education, or nursing care. Dr. C. C. Pierce, Assistant Surgeon General of the United States Public Health Service, in a paper on "The Nurse as a Factor in Venereal Disease Control," read before the National League of Nursing Education last June, called attention to the fact that 50,000 nurses would be needed to fill the demands of bills then before Congress and state legislatures as compared with only 6,000 in such service before the war. This, he said, was a challenge to those responsible for the education of the nurse, which indeed, it is—a challenge and an obligation.

Together we must also effect such changes as will enable us to attract to our schools of nursing well-prepared students in more adequate numbers. The shortage of pupil nurses is a serious and an immediate problem from the point of view of hospital administration and proper training school conduct. For we know, all too well, that upon a sufficient number of student nurses depends the nice adjustment of adequate care for patients, and adequate teaching for the pupil nurse herself.

I have said that we face a common need for readjustments which differ in some phases, to be sure, but which are pretty clearly defined and recognized by us all. It is the solution which has troubled us. And it is the solution, not merely a reiteration of the adjustments, that I would discuss.

To solve any problem one must, of course, seek an

*Read at the Twenty-first Annual Convention of the American Hospital Association, Cincinnati, September 8-12, 1919.

understanding of the causes of the difficulty and then apply the remedy. The discrepancy in the public health nursing ranks is an inevitable result of the general omission of any such training from the usual under-graduate preparation. This we must remedy. It is the general consensus of competent nursing and medical opinion that the shortage of student nurse applicants is the direct result of better opportunities offered young women today in so many other lines of endeavor. It seems clear that we must effect changes that will enable us to compete more successfully, if we are to survive, with other educational, social, and industrial institutions which now so universally offer better working and educational advantages.

Just as young women are leaving the teaching profession because of insufficient pay and monotonous round of set duty, so they are not entering training schools because of long hours and failure to find therein varied and thorough training in all the present-day branches of nursing itself. Thus we have come to recognize the necessity for an eight-hour day. We are asking how we can make the three years of apprenticeship work more profitable and attractive to the student, and how we can improve our teaching methods and equipment; for such students as apply are seeking those schools where there is the most advantageous balance of practical and theoretical teaching and those which include the essentials of training in public health nursing in the under-graduate course. The large mass of data offered by the United States Student Nurse Reserve Campaign of the Council of National Defense during the war taught us conclusively, if proof were needed, that the greatest shortage of applicants showed itself where the training schools for nurses and the hospital facilities for training were weakest; whereas, in many instances, the better equipped hospitals and schools had waiting lists. We are ready to make such necessary changes as seem for the better, but how can we possibly make them with our present budgets?

The whole gamut of problems and readjustments, budgets included, in my judgment, resolves itself into an educational problem which concerns on the one hand the status of the training schools for nurses as educational institutions, and, on the other, the education of the community to a recognition of its responsibility therein. The only solution lies in the bringing into existence of as sound and universal an educational system and basis for the training of the nurse for professional usefulness as the community has long since provided for other groups of public servants—librarians, teachers, engineers, chemists, physicians, or lawyers.

I wish, then, to outline how we may hope to bring this sounder educational basis for nursing education into existence, and to indicate what constitutes our part therein as hospital superintendents and training school directors. I have thought, also, that perhaps the most useful and encouraging thing I might do would be to conclude with a description of the School of Nursing and Health of the University of Cincinnati, which operates in the Cincinnati General Hospital. This school has been an integral part of the university for three years, and to those of us most closely concerned with its inception and operation it seems to be solving, in a very practical and satisfactory way, not a few of the most pressing problems now before us for adjustment. What we have done others may easily hope to accomplish.

The burden of such adjustments as we are facing must be borne by the community as a whole. It is certain we cannot bear it alone, and the largest single step that we can take at present is for each one of us in his or her own hospital school and city to arouse a sense of community responsibility toward nursing education. It is advisable, too, that we keep conversant with the deliberations of the Committee on Education of the National League of Nursing Education in order that we may have the benefit of its guidance in educational policies.

Society has always been ready to assume its obligation toward any group when it sees that such a group may render an important service; more especially is this true when a constructive policy is at hand which can be safely counted upon to afford an adequate preparation of that group for its maximum service.

The unending calls for visiting, school, industrial, and institutional nurses that pour into our training school offices so much faster than we can turn out students to answer the calls, is forceful evidence that the attitude of the community has long since passed that milestone in its conception of the service of the nurse which marked the early days of the training school, when her ministrations to the sick in the hospital or as a private duty nurse to the well-to-do marked the limit of her serviceableness. The community now expects the nurse to teach social and personal hygiene, and to work with the physician to prevent disease as well as to care for the diseased. Statistics and human documents alike point to the multiplicity of her services. One finds almost at random such summaries as the following:

"The Metropolitan Life Insurance Company found the mortality among its policy holders reduced by 12.8 per cent during the five years succeeding the employment of a visiting nurse service.

"New York City over a period of ten years, reduced its infant mortality from 186 to only 86 out of each one thousand babies—a reduction very largely attributed to the nursing service of the city."

Again it is reported in a recent study of pre-natal and obstetrical work in Boston that: "Out of 731 cases where proper medical and nursing care and inspection, before birth, was made available, the death rate among the babies during the first year of life was cut one half; during the second year of life it was cut one-third; still births were fifty per cent less than normal, and the mortality of mothers was reduced by 50 per cent."

As it stands today, then, the problem of the community's responsibility in the preparation of the nurse is not the failure to realize the value of her service, but rather a grave misapprehension regarding her preparation therefor. As a community, we have freely provided for all sorts of academic and professional education, but we have neither freely nor adequately provided facilities for nursing education. Most people know that the nurse is trained in a hospital; they believe that the hospital is entirely able to assume full responsibility for her education, but know very little about the content of her training.

We would, I believe, do well to acquaint the public generally with the fact that the system of nursing education universally in vogue is the apprenticeship method; that the student nurse enters the hospitals of our country with no universally standardized educational prerequisites for entrance, thus differing from all other school systems; that she is provided with uniforms, laundry and maintenance, and with a varying, but really unsafe, minimum of theoretical instruction, in return for which she carries the great burden of the nursing care of the patient in the hospital and sometimes adds to its maintenance through charges made to patients for her services. The public should be appraised of the fact that the service

she renders is so essential that were she, the pupil nurse, to go out of existence there would be only one solution—to employ an equal number of graduate nurses and hospital helpers to take her place. For three years the student nurse thus gives her service and receives what training and education she may.

It is a preparation too variable, too ill-assorted, and too precarious. We should make it clear that such an apprenticeship is not at all meeting the present demand which the community has for the graduate nurse, and that the trouble rests largely upon the failure of the community to meet its responsibility throught endowment or appropriation of public funds for the training school and failure to make the fullest use of its present educational facilities to meet the needs of nursing education. The Bulletin for the United States Bureau of Education for 1912 points out how haphazard and unsuitable a ground is offered by most hospitals training the student nurse. It says that "the hospital is provided with no margin for educational needs to pay instructors, to provide text-books, teaching materials, or others of the simplest necessities for a school;" and the report seriously affirms that "schools cannot exist without instructors, without libraries, without class-rooms, and without teaching material."

The student nurse's time—three calendar years—is given in the service of the hospital. According to all the rules of fair play, the student is entitled to the expenditure upon her education and training of such equipment and teaching facilities as would equal the sum that her actual service would cost the hospital if no training school existed. The community owes at least this much, through the hospital, to the student nurse. This much she actualy earns on a cooperative basis, and such a provision would include no gift for educational opportunity as is so commonly provided in the other professions. To permit the hospital to provide less than this minimum is to countenance an exploitation of the student nurse. Moreover, where funds are limited, the sacrifice should not altogether fall, as it so frequently does, upon the training school. This, too, should be a public trust to see that the necessary sacrifices are more evenly divided.

The community should provide the hospital training school with sufficient funds and should exact that they be definitely expended for educational purposes.

We must face the fact that an increasing number of our graduating classes are entering the field of public health nursing; that few of them take post-graduate work; and that their serviceability to the community is commensurate only with the breadth of the educational requirements for entrance into the training schools for nursing and upon the adequacy of the curriculum provided during the under-graduate period.

The content of our curriculum calls, then, for thorough revision both on the side of theory and of practice. Assistant Surgeon General Pierce points out in the paper above referred to that the increased call for the public health nurse is the outgrowth of the shift in emphasis in the public health campaign from legal and restrictive to educational and constructive measures. Purification of water can be obtained by law, and quarantine of communicable diseases by restrictive measures; but, he points out, the larger problems of health require the intelligent cooperation of all individual citizens, and this, above all, depends upon the preparation and maintenance of a large body of public health nurses who are thoroughly conversant with modern social problems, social legislation, economics, bacteriology, industrial hygiene, and disease prevention, and who are tutored through courses in psychology and education in methods of teaching all these things to the people. He holds with Professor Winslow of Yale that the nurse "must be equipped with a knowledge of the economic conditions and sociological principles which intimately touch her at a hundred different points."

We must, somehow, provide means and further the desire on the part of so many training schools to deserve and command recognition as part of our professional and university educational order. It is a short-sighted policy which so guides the hospital and training school authorities that the training of the nurse subserves only or chiefly the immediate needs of the hospital. The better part of the most selfish community wisdom resides rather in looking upon the training school for nurses as an educational institution, responsible for the preparation of professional members of society who are concerned with the health and welfare of the community.

In reconstructing our curriculum, we have one decided advantage over the average educational institution in that our theory and practice are motivated and worked out in connection with real and immediate problems. Our apprenticeship method of nursing education in this aspect will prove a possession to be cherished. In the main we have come along the right road in our method of education. Our theory has been too scanty, and we have been too slow to meet changing conditions; but when we have incorporated into our under-graduate training the larger social implications of the technical work, and broadened out the scope of our under-graduate work to include the knowledge of disease prevention and health promotion, as well as nursing care, we shall, then, have an educational scheme which is superior to many in social usefulness and in attractiveness to students. This will require teachers in our nursing schools whose training has been of a high academic order. It will require women capable of readjusting and administering the details of our curriculum with a clear vision of the needs of today always before them. This means university training and opportunity, and we know that all these require endowment.

The public health nurse cannot afford to be denied training in contagious diseases, skin and venereal diseases, in orthopedic nursing, and in mental and nervous diseases. These can all be included through affiliation, or otherwise, but this training will necessitate the greatest care in the utilization of time devoted to practical experience in the technique of surgical, medical, and other essential branches of nursing. It will afford no waste in the repetition of technique beyond the point of sufficient skill. It will involve the elimination of indefinite repetition of bed-making and dusting, which to a great extent should be the work of an attendant. As I have pointed out elsewhere, wherever real conservation of the student's time can be accomplished, one can still hold fast to all that has proved of value in the way of orthodox training in technique and can, in addition, give to the student well systematized, academic courses in the sciences which underlie their profession, and which bring her a consciousness of the relation of nursing to modern social problems; for we know that more than a reasonable degree of technique and skill will be of little avail if its possessor remains unconscious of its significance to the needs of existing community life when she is called upon to apply it therein.

The university and college and, under certain circumstances, the normal school should be kept in mind as the place in which our educational plans and obligations may best be realized with the least additional expenditure and with the largest benefit to the student. Once the university comes to see the educational need of the nurse and to feel its obligation to the community to meet the same, it

is not so long a step to the realization of a centralized school for all the hospitals in the district. Such a system would indeed be a boon to the superintendent of the small hospital and training school who is struggling with the dual load of hospital administration and the education of students.

Let me recapitulate: The community needs, in the interest of its own public health, to regard training schools for nurses as an integral part of present-day professional and university education; and it needs to provide the hospital training school with funds that are in excess of the funds actually needed to run the hospital itself. The community has failed to make this provision universally, not so much because it did not appreciate the service of the nurse, but because it is commonly believed to be within the province and within the means of the hospital alone to meet the situation adequately. This is a mistaken attitude. Professor Nutting of Columbia University, in 1916, in a paper on "A Sounder Economic Basis for Training Schools for Nurses," pointed out that, while lavish funds had been donated to women's colleges, to our great professional schools of medicine, law, journalism, and to our university schools of liberal arts and applied sciences, in the whole history of nursing "there have been but two large gifts for the education of the nurse."

Since Miss Nutting's paper was written advances have been made, and one of the most notable is here in Cincinnati where this Association is meeting. Our citizens have recognized the need for better nursing education and the obligation of the city departments concerned to make the highest use to this end of the facilities of the municipal hospital and the municipal university in the interests of the health and education of the community which these institutions serve and have given the under-graduate training the dignity of university rank.

By special arrangement of the two departments of the city government operating the university and the Cincinnati General Hospital, the hospital serves as a laboratory for the practice of all branches of nursing and offers cooperative assistance to the student nurse, while the university in its College of Medicine, School of Nursing and Health, and in its other colleges, provides the scientific instruction essential to the study and practice of nursing.

Thus upon a cooperative basis the city expends upon the student nurse body a sum approximately equivalent to the value of their service to the city through their nursing care of the city's sick in the hospital and the dispensary. Through the hospital, the city assures an adequate number of supervisors, graduate nurses, and ward assistants and, through the university, a special budget for a faculty of nursing and health in addition to such other facilities as its other colleges and departments can offer. The student thus pays for her education, not in tuition, but in service which tuition charges would hardly be able to purchase. The enthusiasm and devotion of the pupil nurse to her work in her eager student days are proverbial. We hope that Cincinnati will be even more generous to the student nurse, for it now expends upon other student groups in excess of their tuition fees the following sums: $345 upon each medical student; $129 upon each School of Household Arts student; $122 upon each Engineering College student.

The plan has passed its third year and has proved successful. It is one which might well be adapted for use in connection with state as well as privately endowed colleges and hospitals.

Briefly stated, the plan is as follows: By the city charter it is provided that "there shall be a school of nursing and health under the department of medicine of the University of Cincinnati and a director thereof. The director and faculty of the school of nursing and health shall be appointed by the board of directors of the University of Cincinnati. The director of the school of nursing and health shall be the director of the nursing department of the municipal hospitals, and the other members of the faculty of said school shall be appointed to such supervisory positions in the nursing department of the hospital as the board of directors of the university shall designate."

The By-Laws of the University provide that: "The director of the school of nursing and health shall have the title of Professor of Nursing and Health and shall be a member of the university senate."

All students entering the school of nursing must matriculate in the university with the same unit entrance requirements as students in the College of Liberal Arts.

In the three years' professional course the theory and practice are so balanced that upon its completion the University grants the usual diploma of graduate nurse and gives, in addition, two years of credit toward the degree of Bachelor of Science. The diplomas of nursing are granted at the regular university commencement with the other degrees and diplomas granted to students in the other colleges and professional schools. The course for these two additional years offers a wide range of electives, making it possible to adjust the student's program to the needs of pre-nursing or post-nursing; and yet it is restricted enough so that all the courses have some direct bearing upon the problems of public health, institutional management, and nursing in general.

Credit is given in the three-years' professional course on the same unit basis as in other university departments, one unit for one recitation or credit hour per week, for one term of fifteen weeks. Each month of cooperative nursing practice on the wards under teaching supervision has been credited as one such unit except for the probation term, when the four months of nursing practice count only as one unit.

The regular three-year program for the diploma of nursing on this basis totals 72 credit hours, the exact equivalent in credit hours of two years in the College of Liberal Arts. The 72 hours include 50 credit hours in class work and not less than 22 in practice on the ward, out-patient dispensary, and other services.

In accordance with the reorganization of the professional course of study in the school of nursing and health when we entered the university, each year is divided into three terms of four months each and the student nurse is freed from ward duty for the first semester following probation and for one semester in the second year for full academic work. Throughout the balance of the course four lectures a week in subjects fundamental to nursing and health are given coordinately with the different types of nursing practice in progress. The terms of nursing practice are so arranged as to permit each student to elect four months in the third year in the theory and practice of public health nursing, hospital and training school administration, or in any other branch of nursing in which there is a wish to specialize.

During the probation term, instruction is given the student only as follows: Lectures and demonstrations in elementary principles of nursing, 45 hours; lectures on history and ethics of nursing, 15 hours; lectures on personal and hospital hygiene, 15 hours each; lectures in elements of cookery, 15 hours, and laboratory, 45 hours; and lectures on introductory anatomy and physiology, 15 hours.

In this probation period the coordinating ward practice —six to eight hours daily—begins very early in the term; as soon, indeed, as the student has been taught bed-making and the simple beginnings of personal and ward hygiene. She takes over new nursing procedures from time to time as she receives instruction therein. All the time she is becoming oriented to the atmosphere of the hospital and the problems of nursing amid the conditions in which she wishes to become efficient, and where her eagerness to be at the bed-side can best be utilized for drill in the acquisition of skill in the more simple, monotonous ward procedures. This use of the probation period we hold to be the best method educationally. This early, practical ward work motivates the more thorough-going theoretical courses as no other plan can hope to do. Moreover, this arrangement is the more economical one, for it affords a working basis to guide one in the early elimination from the course of the unfit, before funds and a large amount of time and energy have been expended in giving fuller academic work to a candidate who may later prove unable to make the adjustment to the actual work of nursing, or whose chances for success and ability to assume responsibility in the more skilled and professional care of the patient are slight.

The advantages of alternating semesters of practical work with semesters of study which are free from the fatigue of ward duty are obvious. The groups relieved from the burden of ward work are able to carry well-rounded courses worthy of university credit, courses which give the student good habits of study and a fair background for her future work. In planning the eight-hour working day in the hospital this scheme of terms off duty for theoretical courses also proves more elastic and economical both from the point of view of ward management and that of cost of instruction. It requires less repetition of courses and less juggling of time and students to insure class work at hours when the student is sufficiently rested to profit by instruction. It also makes the planning of vacations possible with the regular number of staff and students.

During the first study period the course given is:

| | Lectures | Laboratory |
|---|---|---|
| 1. Chemistry | 45 hours | 90 hours |
| 2. Anatomy and Physiology | 45 hours | 90 hours |
| 3. Solutions and Introduction to Drugs | 30 hours | |
| 4. Medical Nursing—Lectures and Demonstrations, 45 hrs. | | |
| 5. Surgical Nursing—Lectures and Demonstrations, 45 hrs. | | |

During the second study period the course given is:

| | Lectures | Laboratory |
|---|---|---|
| 1. Bacteriology and Hygiene Lectures | 30 hours | 45 hours |
| 2. Pharmacology and Therapeutics | 30 hours | |
| 3. Social Science Lectures | 60 hours | |
| 4. Psychology Lectures | 45 hours | |
| 5. Foods and Nutrition Lectures | 30 hours | 45 hours |

During the periods of ward practice every day of the student's time must be carefully planned. The variety of training which can be satisfactorily given is one of the strongest points in the plan. We feel that no students should be denied, in addition to the usually required branches of nursing, training in the nursing of contagious diseases, in skin and venereal diseases, in mental and nervous diseases, and in public health field work, so the course as given to every student in the school is divided among the various services as follows:

| | | |
|---|---|---|
| Introduction to General Nursing Care | 4 | months |
| Medical Wards | 2 | months |
| Surgical Wards | 2 | months |
| Pediatric Wards | 2 | months |
| Contagious Wards | 2 | months |
| Orthopedic Ward and Gymnasium | 1 | month |
| Admitting Pavilion and Social Service | ½ | month |
| Eye, Ear, Nose and Throat, Skin and Venereal | 1 | month |
| Hospital Diet and Milk Laboratories | 1 | month |
| Operating Pavilion | 1½ | months |
| Gynecological Wards | 1 | month |
| Obstetrical Wards | 2 | months |
| Psychopathic and Neurological Wards | 2 | months |
| Elective in Hospital Administration / or / Field Work in Public Health Nursing / or / Selected Ward Practice | 4 | months |

The lectures which coordinate directly with this nursing practice experience are planned to give the student a better working knowledge of her cases and opportunity to consider the community aspect of each disease. As given to each student these lectures are as follows:

| | Lectures |
|---|---|
| Elementary Principal of Nursing (in Probation Period). Includes demonstrations | 45 hours |
| Orthopedics, Genito-Urinary and General Surgery, and Gynecology | 15 hours |
| Pediatric Nursing | 15 hours |
| Eye, Ear, Nose and Throat, Skin and Venereal Diseases | 15 hours |
| Mechano Therapy | 15 hours |
| Obstetrics | 15 hours |
| Contagious Diseases | 15 hours |
| Introduction to Public Health Nursing | 15 hours |
| History and Ethics of Nursing (in Probation Period) | 15 hours |
| Psychiatric and Neurological Nursing | 15 hours |
| and Demonstrations, Medical Nursing (first study period) | 45 hours |
| and Demonstrations, Surgical Nursing (first study period) | 45 hours |
| Pathology | 15 hours |
| Preventive Medicine and Nursing | 15 hours |

It is assumed that, after two years and eight months so spent, the student nurse is ready to profit by a wise selection of four months' specialization in the public health nursing field, or hospital and training school administration, and the corresponding elective courses have been arranged as follows: Invalid occupation, advanced courses in public health nursing, journal club, teaching of public health, nursing methods, and hospital organization and training school administration.

We extend affiliation in contagious diseases, public health nursing, pediatrics and other nursing branches, and give class work upon the same cooperative basis as to our own students. We stand ready, as we should, to share our hospital and school facilities with as many schools as possible where affiliation is needed.

In conclusion we invite you to visit us and hope for constructive and helpful criticism. If there are discrepancies here and there, please remember that we are only three years old and that our infancy has weathered a war and a terrible epidemic.

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### Ohio Extends Nursing Service

The prospects for effective health work under the new Ohio health law is illustrated by the progressive plans of some of the counties and cities in Ohio which have heretofore done very little in public health work. For example, the Board of Health of Elyria, O., has provided

for a budget of $33,500, as follows: Commissioner, $4,500; six nurses, $9,000; dairy and food inspection, $2,500; clerk, $1,500; deputies, $2,500; automobiles, $5,400; incidentals, $5,100; clinics, $3,000.

The work will provide nurses who will visit every school house and examine every child for adenoids, bad tonsils, decayed teeth, malnutrition, and malformations.

## HOSPITAL CONFERENCE POSSIBLE SOLUTION OF NURSING PROBLEM*

### Registration of Trained Nurses and Attendants, More Satisfactory Working Conditions and Cooperation of Medical Profession Prime Necessities

By SARA E. PARSONS, R.N., Superintendent of Nurses, Massachusetts General Hospital, Boston

In this American Conference on Hospital Service to be organized, I see the first probability of a solution of the nursing school problem, because it will be the first time that all those who are interested in the problem, including the nurses, will have a chance to discuss it together; that is, we may solve it if, through the Conference, we reach the public for whom all departments exist and from whom adequate support must come if hospitals are to develop into their greatest usefulness.

Nursing schools are necessary to teaching hospitals, to at least a part of the medical profession, and to public health.

To the nurse, herself, the profession is no longer necessary as a means of livelihood. There are many other occupations in which she can earn more and work less. It is only when she loves her work that it becomes necessary to her, and it is because our leaders have loved their work that they have worked persistently against great odds to maintain fairly good standards. We have arrived at the stage where we know by experience what the trained nurse should be taught and the kind of hospital in which she can get her practical training. We also know what theory is required and have demonstrated two or three ways of getting it. We know and can prove by concrete example what influences militate against a school and what influences work favorably. There is scarcely time today to touch upon these things, but our statistics and our experience will be at the disposal of the Conference. We know that there should be trained nurses and trained attendants, and that both should be licensed before being allowed to practice as such. We never can have trained attendants until trained nurses are compelled to register after passing state board requirements. Naturally, young women who can get diplomas from some kind of a hospital and pass as trained nurses prefer to do so as a rule. The danger of partially trained people practicing as nurses is illustrated by an attendant who had experience in an Eye and Ear Infirmary. She was recommended by one physician to another who put her on a maternity case. The patient died of puerperal fever. The doctor blamed the nurse, asked where she was trained, and visited the superintendent of the school. He learned, too late, that she had never even qualified as an attendant, but had been dropped from the school.

Any kind of hospital which provides experience in all the major branches of medicine, or which by affiliation with other hospitals, can supplement its experience, may become a good field for the education of the nurse if suitable theoretical instruction and living accomodations can be provided. To be successful, hospitals must be able to relieve the student nurse of the domestic work that has hitherto consumed so much of her time, and they must supply a large enough staff to reduce her working hours to a reasonable number. Most necessary of all is a recognition of the nursing department by the medical department as its equal in dignity and in value to the community. Hospitals that take this stand are not seeking candidates so far as I have been able to learn. The acid test of a school is its graduate. If she is satisfied with her training after she has worked as a graduate beside other graduates she will be loyal to her school and work for its advancement. If she finds, however, that her training does not compare favorably with that of her associates she will either turn entirely against nursing, or she will recommend that her friends and relatives go to other schools, where the graduates are successful and recognized.

Hospitals have lost tremendously by not having held their nurse alumnae close to hospital interests. The things that are now most destructive to the development of nursing schools are the lack of professional status (nursing to be saved must be a licensed profession), the general apathy of our many medical friends toward our efforts to create and to maintain standards, and the active antagonistic propaganda of our few medical opponents. As an illustration, let me cite the editorial in the *Journal of the American Medical Association* some months ago which cruelly and unjustly attacked us at a time when nurses were rising splendidly at home and abroad to meet the great responsibility put upon them by the exigencies of the war. They not only did their own work but in addition helped out in the doctor's special province. They acted as anesthetists and clinical assistants.

At the height of the work at Base Hospital No. 6 there were three nurses working as anesthetists, one in the diet kitchen, another as housekeeper and another in the supply room, all positions that might have been filled by doctors or lay people. Yet so far as I know not one voice in the medical world was raised in our defense after that attack in an organ which represents the whole medical field in America. We know that only a few could have endorsed it. The pages, however, were closed to the nurses or our friends who attempted to answer the charge. Every such incident makes the profession of nursing less attractive and now that we are asking for relative rank with its insignia for army nurses in order that their authority may be recognized in the usual way and that they may have a definite and dignified position commensurate with their responsibilities—not asking for more pay or other emoluments—we are again met by the opposition of the general staff of the medical department. We have had many splendid endorsements from those who worked more closely with us, but unless we can win the staff over, the difficulties will be almost unsurmountable.

Yet, dreadful as our case is, it is not incurable. Numbers of young women want to be nurses more than anything else, and as soon as our schools are such that we are willing to have our own daughters and sisters train in them, we shall have more applicants. But to make our schools such, we must have a budget of our own or a sufficient endowment. That is where the public in general comes in. Then we must have licensure or obligatory registration and the loyal cooperation of the medical profession. If, through the Conference, we can discuss our problems from every angle and eliminate distrust and misunderstanding, I am sure the nursing situation of the hospitals will no longer be a problem.

*A report of the meeting of the American Hospital Conference on Hospital Service, held at Cincinnati, Sept. 8-12, 1919, was published in THE MODERN HOSPITAL, Vol. XIV, 4, p. 313.

# DEPARTMENT OF DIETETICS

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## THE QUESTION OF CHILD FEEDING*

### Modern Development of Child Feeding Distinctly American —Rigid Investigation Brings Modification of Old Standards—The Later Period and the School Canteen

By MARY SWARTZ ROSE, Associate Professor, Department of Nutrition, Teachers College, Columbia University, New York City

Child Feeding is a newcomer among topics for a dietitians' meeting, as it is a newcomer in the whole field of scientific feeding. Today it is the most pertinent task of the social service dietitian, an important subject for the teaching dietitian, and a problem not uncommonly presented to the administrative dietitian.

Several years ago I ran across an article in the *Archives of Pediatrics* entitled "A Short History of Infant Feeding," which was most interesting, as it showed how very recently in feeding, as in other aspects of living, the child has had a place of his very own. According to Mixsell's brief historical sketch, there is no literature on infant feeding prior to the fifteenth century. In 1487 Paulus Bagellardus wrote *De Aegritudinibus Infantum*, which, interpreted, has a more modern sound—"Diseases of Infants." In this is recorded the fact that a mother commonly suckled her child two or three years, a custom that prevailed generally until the advent of modern medical science, and is current today where poverty, lack of an adequate substitute for mother's milk, or general ignorance make this the only way of preventing total extinction of the babies. Professor Sherman tells an interesting story of how, on his recent trip to Russia, passing through Japan, he met the celebrated Japanese, Takaki, who freed the Japanese navy from the scourge of beri-beri. Being congratulated on his hale old age, Takaki replied that he was fortunate in that, being the only son of his mother, he was able to enjoy his mother's milk for five years!

Thomas Faier, author of the earliest English book containing anything on child feeding, *The Regiment of Life* (1567), called his first section "The Book of Children" and advised that a child must not be weaned until he has all of his teeth, and only when the moon is on the wane.

Artificial or mixed feeding is not mentioned in literature until the eighteenth century. Artificial foods were limited to bread and pulse; cow's milk is not included. "Water pap" (bread and water) or meat broth might be given on the appearance of the first tooth, a chicken wing on the appearance of the second, followed, if desired, by "small beer with egg beaten in."

Michael Underwood, Licentiate in Midwifery of the Royal College of Physicians, London, published in 1793 "*A Treatise on the Diseases of Children with Directions for the Management of Infants from the Birth.*" He is said to be the first who seriously attempted to find a substitute for breast feeding. He recommended cow's milk, with barley water as a diluent, and condemned the use of "water pap." He seems to have been a most progressive physician, calling attention to the necessity of scalding milk receptacles at least once a day, and even recommending that the milk be boiled. The milk, however, was to be as new as possible "since milk as an animal juice probably contains some fine subtle particles which evaporate on being long out of the body." He is much interested in "Dr. Smith's new feeding pot," shaped like a gravy pot with a long spout arising from the bottom and pierced with only a few small holes at the end, which was covered with a piece of vellum, washing leather, or parchment, soft and pleasant in the infant's mouth. This seems to have been a great improvement over the cow's horn of 1783, punctured at the tip, and furnished with a kind of nipple made of two pieces of parchment or leather sewed together and tied about the tip of the horn so that milk was sucked out between the stitches. Underwood warns that any child brought up on it is in danger of "falling into the watery gripes!" And no wonder, considering the impossibility of cleaning it! The mortality of artificially fed infants at that time was terrific. Forsythe's estimate for London from 1780 to 1816, is that it was 80 per cent.

Michael Underwood wrote fully seventy years before Pasteur published his first paper on the cause of fermentation. It is needless to dwell on the advantages which have come to little children through the development of the science of bacteriology, its practical application to the handling and keeping of milk, and the efficient supervision of the milk supply exercised by our great cities today. The conservation of child life resulting from this is a commonplace to all dietitians.

Weaning time was once fraught with dread. It was put off as long as possible. Today the strength of the mother is conserved, and often the child benefited, by a fearless shortening of the period of maternal nursing. Weaning time is whenever it is safe to give a child a substitute for mother's milk, not only free from harmful bacteria, but so adjusted to his sensitive digestive tract as not to cause any disturbance, and so adapted to his ultimate food needs as to supply every essential for growth. This is a considerable responsibility, but nowadays we shoulder it without much anxiety at nine or ten months, often earlier. As soon as the safeness of milk was assured through pasteurization, the time was ripe for attention to the baby's digestive powers, and there arose great pediatrists, like Dr. Abraham Jacobi, who has just closed such a long and wonderful career in New York City. This dean of babies' physicians established the first medical clinic in the New York Medical College in 1860. He helped to lay the foundations for rational milk modification, through proper dilution, modification of the properties of the curd, and changes in the proportions of protein, fat, and carbohydrate in the mixture.

There came on the scene in his early practice also a host of "infant foods," the greater number of which were largely cereal preparations serving to modify the cow's milk curd, but for which all sorts of extravagant claims were made. Now that infant feeding is better understood, these have settled fairly well into their proper place; their manufacturers do not make for them such extravagant claims, and the rosy-pink child who has A's food added to his milk is not held up as a product of A's food, but of milk effectively adjusted to his digestive system.

*Read before the Second Annual Convention of the American Dietetic Association, Cincinnati, Sept. 8-12, 1919.

The modern development of child feeding is distinctly American, and another significant epoch was ushered in by Dr. Rotch of Harvard, known as the father of the milk laboratory. He was responsible for the establishment of the first place where milk of undoubted purity and known composition, made up according to prescription, could be obtained by the public. Westcott, writing in the *International Clinics* in 1900 on the "Scientific Modification of Milk" says: "Till then (1892) there was no rational system of infant feeding. . . . We have come to think of milk mixtures in terms of percentages of ingredients. In percentage mixtures any one element may be altered without disturbing the others. Some babies cannot take milk undiluted until the end of the second year. Many infants suffer from overtaxed digestion." The writer goes on to review rules as to the best percentages for different ages and methods by which the most accurate results may be obtained. The "percentage method" was then in full vogue, and all sorts of tables and other devices for making formulas to yield desired percentages may be found in the various textbooks on practical dietetics, though the elaborate system then in use has given way to a great extent before a simpler plan. Much can be learned about practical feeding from study of the percentage method, and it still serves as a valuable aid in critical situations. It was not so much a "method" as a form of expression; and thus investigators passed on their experiences in adjusting food to the digestive capacity of infants.

Every student of dietetics is more or less familiar with the development of the energy concept in nutrition, and the experimental work with the respiration apparatus and calorimeter to determine human energy requirements. Here again, the child is the latest subject for investigation. The literature on energy requirements of infants has been fully reviewed by Benedict and Talbot (1914).

By 1910 we find the calorie taking a definite place in the minds of progressive pediatrists. At the present time we have fairly definite energy standards for the first year: first 3 months, 110-100 calories per kilogram; second 3 months, 100-90 calories per kilogram; third 3 months, 90-80 calories per kilogram; and fourth 3 months, 85-75 calories per kilogram.

The recognition of the law of the conservation of energy as an operative force in human diet is the basis of the modern science of nutrition. The calorie has been somewhat decried as an aid in child feeding, or in fact, in any feeding. This attitude reminds me of the old fable of the Blind Men and the Elephant:

> "It was six men of Indostan
> To learning much inclined,
> Who went to see the elephant
> (Though all of them were blind)."

You will perhaps recall that

> "The First approached the elephant
> And happening to fall
> Against his broad and sturdy side,
> At once began to bawl:
> 'God bless me, but the Elephant
> Is very like a wall.'"

While the second feeling of the tusk, cried:

> "To me 'tis mighty clear
> This wonder of an elephant
> Is very like a spear!"

And the third

> " . . . . . happening to take
> The squirming trunk within his hands
> Thus boldly up and spake:
> 'I see,' quoth he, 'the Elephant
> Is very like a snake.'"

Those who were successful in infant feeding through application of the proper sanitary precautions and skillful adjustment of the food to babies' needs were sometimes content without further investigation although they had felt only a part of the nutrition elephant.

Any complete feeding program must take into account this most prominent requirement of the living organism—namely, an adequate supply of energy. Without this growth is impossible, no matter how well selected a diet may be in other respects. Whether secured consciously by direct calculation, or unconsciously through long practical experience in judging amounts of food which will make a given child prosper, the calorie is fundamental. Like the air we breathe or the water we drink, it is one of the vital things, and no blind philosopher, hanging to some wisp of truth will delude the open-minded with his cry: "The elephant is very like a rope!"

On the other hand, to have felt the elephant's knee is no justification for shouting "the elephant is very like a tree." Besides calories, there must be protein adequate in amount and kind. Consideration of amount is old; while consideration of kind is new. To Emil Fischer, who has only just died, we owe the first steps in solving the mystery of the chemical constitution of protein. The amino acid has become an every-day concept in nutrition, and proteins are "adequate" or "inadequate" for growth according as they do or do not have certain amino acids in their molecules; they are quantitatively more or less efficient according to the proportions of these same amino acids. We have passed the periods both of judging the protein in a baby's diet solely by its digestibility and of considering the amount without reference to the source. Thanks to the work of Hopkins in England and Mendel and Osborne in this country, supplemented by that of McCollum, we appreciate milk as a source of protein today in a new sense, knowing its proteins to be of a quality unexcelled for growth and capable of rendering very efficient proteins of much poorer quality when used with the foods containing them—cereals, for instance.

During the time of the investigations which have led to this new valuation of proteins, there developed in pediatric circles a distrust of fat in infants' diets, first in Europe and then in this country. Up to about 1907 milk protein had received most of the blame for the indigestion of babies, and the attenuation of protein in percentage formulas had been carried to an extreme degree, with high percentages of fat, often making the total fuel value of the diet higher than the child's actual needs. Then it was shown that fat was as frequent a cause of indigestion as protein, and we had

> "the men of Indostan
> Disputing loud and long,
> Each in his own opinion
> Exceeding stiff and strong,
> Though each was partly in the right
> And all were in the wrong."

The final result was a modification of the old standards, the employment of whole milk rather than top milk for modification, and less emphasis on the exact percentage of each ingredient, inasmuch as good digestion was more easily secured with lower proportions of fat. Formulas are now constructed on lines as simple as the following: One and one-half ounces of milk per pound of body weight (which insures sufficient protein), added carbohydrate food to make up the total fuel requirement, and water to make a volume within the capacity of the child and at the same time increase digestibility by considerable dilution.

In 1910 the revolt against fat had gone so far that skim milk was advocated as an adequate food for growing ani-

mals. But the researches of Stepp, McCollum, Osborne and Mendel, made evident (by 1915) that there was a hitherto unsuspected value in the fat of milk, due to the presence of the fat-soluble vitamine. Vitamines have been distinctly recognized as essentials of diet since 1912, by which time McCollum had pointed out the growth-promoting properties of water extracts of certain foods, designated the effective agent as "water-soluble B" and identified it with Funk's "vitamine" curative of beri-beri. When the fat-soluble vitamine was added to the category of dietary essentials, a supply of milk was perceived to be peculiarly important for growing children. Thus within a few years milk had been raised to a much more important place in the dietary. At the first Child Welfare Exhibit in 1910, the then novel exhibit of the fuel equivalents of one quart of milk provoked a storm of skeptical comment, and we had to take statistics in black and white to prove that a quart of milk was equal in energy value to nine eggs or one-and-one-half pounds of beef; now we recognize not only its energy value but also its incomparable proteins, its fat-soluble and water-soluble vitamines; and finally its rich and varied supply of ash constituents, with the exception of iron. And even in regard to iron, Sherman has furnished evidence that what is present, though small in amount, is remarkably well utilized.

One finds a considerable prejudice against milk in some quarters. I have been told that I give my own child too much milk! And I have often been called to the defense of the slogan "A quart of milk a day for every child." It must always be remembered that standards like this are for the normal child and not for the special case brought to some physician. What is done then is not a criterion of what should be done in general. Milk goes so far toward insuring a diet easy to digest and adequate in all essentials of nutrition, that it certainly deserves a fair trial. I think the prejudice against it arises from perceiving only the "tail" or the "trunk" of the nutrition elephant, or from failure to appreciate just how it needs to be supplemented.

Most recently there has been taken into the family of vitamines a third member, "Antiscorbutic C." To the researches of Hess we owe perhaps most of all the recognition in 1919 of a definite substance which prevents or cures scurvy. We owe to Hess, also, the warning that the symptoms of subacute scurvy resemble some of those of general undernutrition, e. g., failure to make normal gains in weight, and a tendency toward anemia. Now milk is not specially rich in the antiscorbutic vitamine, and when heated it rapidly loses such antiscorbutic property as it formerly possessed. There is recent evidence, too, that the diet of the cow affects the amount of this vitamine, so that it is likely to be smaller in the winter time. In view of these facts, there is no doubt that children receiving large amounts of milk might still show signs of malnutrition which would be cured by putting the child on a general mixed diet. It does not follow, however, that as good or better results would not have been obtained with the same amount of milk and a liberal supply of some definitely antiscorbutic food, like orange, tomato or potato.

The recognition of these facts has led to a great change in the time when fruit and green vegetables are added to the diet. For artificially fed babies orange juice has been given successfully at one month, and tomato juice at three months, the amount necessary to counteract scurvy being well borne. So, too, with regard to iron. The main choices among sources of iron for little children are green vegetable juice or pulp (carefully strained), egg yolk, and beef juice. Formerly beef juice was used practically to the exclusion of everything else. But most babies can be readily accustomed to spinach or peas, or a mixture of vegetables, and these have the advantage of being rich in the water-soluble vitamine, while beef juice is poor in all vitamines. It is an expensive luxury in children's diets, to be used when other iron-bearing foods are unavailable or cannot be made acceptable. While high in iron, there is need of experimental work to determine the exact quantity and the extent to which it is utilized. Egg yolk is a rich source not only of iron, but of the fat- and water-soluble vitamines. Owing to its high content of fat along with protein, it is not to be used in unlimited amounts, and has been sometimes overdone, so that the egg, like milk, has received a good deal of unfavorable criticism. Half a teaspoonful of egg yolk a day is enough for a three-months-old baby and a half yolk for a six-months-old baby, but most children a year old can take a yolk four or five times a week. Where eggs do not agree with a child they certainly should not be forced. Their cost makes it fortunate that we now recognize in green vegetables such an admirable substitute.

McCollum has pointed out most clearly the important place of green vegetables in human dietaries as sources of both the water-soluble and fat-soluble vitamines. Many of these foods are also antiscorbutic. Add to these qualities a rich quota of iron and one has an ideal supplement for milk. Thus orange juice for the antiscorbutic vitamine and spinach for the other two vitamines and iron, make good the natural deficiencies of milk. The remaining problems in a child's diet are sufficient fuel and, as soon as teeth have appeared, food that demands mastication chosen with regard to ease of digestion and avoidance of constipation. Those who feed children should have a very clear idea of the rôle of different foods in the dietary and which ones are easy to digest naturally or can be so prepared as to be no great tax on the alimentary tract. An adequate diet is a definite complex, built, according to plan, from a variety of materials. Just as the elephant of the story is not a wall, a snake, a tree, a fan, a spear, or a rope, the dietary is not calories, nor protein, nor ash constituents, nor vitamines, but all fitly joined together in due proportions. Dietitians should be helping to develop methods for testing easily the adequacy of diets, especially in institutions. A great deal of work of this sort has been done by the Food Division of the Sanitary Corps of the United States Army. It should not be lost but used and improved.

I have dwelt upon feeding in infancy because here the modern trend is most distinctly shown, and practice most highly perfected. I believe American babies are better fed than any others in the world. One point which perhaps deserves mention is the present day recognition of the fact that other things besides food play a part in good nutrition. The modern way makes good babies, not only because their food needs are better understood and more skillfully met, but because emphasis has also been placed on regular meals, proper sleep, plenty of fresh air, and freedom from fatigue and excitement. Practice has changed somewhat with regard to the number of meals, but there is no deviation from the rule of scheduled feeding. Any schedule is better than none, but that schedule is the best which gives comparatively long intervals between meals and provides for unbroken night rest as far as possible.

Next to the baby, the child of school age has come in for the most attention. The school canteen for the very poor existed here and there in Europe since 1790, when Count Rumford started soup kitchens in Munich. A great impulse toward extension of school feeding came in England at the time of the Boer war. Great numbers of men

of military age were found to be physically unfit for service, and this deplorable condition was traced back to poor nutrition in childhood. The classic tests of the value of one good meal a day at school in the City of Bradford and elsewhere in England, are admirably reviewed in Louise Stevens Bryant's *School Feeding*. Such experiments established beyond peradventure the beneficial effects of suitable food on the health of school children. School feeding has been increasing steadily in the United States, especially in the last ten years, largely through the efforts of home economics teachers, and particularly in the rural districts has the warm meal at noon been widely extended.

All this has stimulated inquiry into the actual food requirements of school children. Scientific information is still scanty. In the summary by Sherman and Gillett of the recorded data on *Food Allowances for Healthy Children*, there are 381 observations from which to determine energy requirement for the first year, while for succeeding years there may be one, two, or three, and sometimes none at all. Very recently one of these gaps has been filled in by DuBois's interesting studies on the basal metabolism of boys. A small group was studied twice, once when the boys were 12 and 13 years old and again when they were 14 and 15. In the first instance, the basal metabolism averaged 25 per cent higher than for adults, while in the second case it was about 11 per cent higher. There are no similar studies of girls of corresponding ages.

From such data as we have, we may assume that the daily energy requirement of children is so high that they cannot grow at the normal rate without good appetite and good digestion, and one of the special needs of the school child, as well as of the infant, is to have his diet so selected and his meals so arranged that he can ingest day after day from half again to twice as much food as would suffice for an adult of the same size without undue tax on the alimentary tract. This is why, in addition to meeting the quantitative requirements of childhood, expressed in terms of high energy, proteins efficient for growth, a rich and varied supply of ash constituents, and a liberal supply of vitamines, the diet of school children should emphasize regularity of meals; an adequate number of meals with food well distributed among them; bland and easily digested natural foods such as milk, cereals, bread and potatoes; simply prepared foods, free from high seasonings. This is also why, along with this food selection, there must be plenty of sleep, freedom from overwork or excitement, and intelligent education in eating habits.

Perhaps the greatest gain of the past few years is higher ideals of health and means of practically measuring health. Here again, history begins with the baby. Baby health contests all over the country showed people that every baby that looked pleasing to its parents was not up to normal. Chagrined parents were through pride impelled to find out why their children were not prize winners and apply the remedy, more often than not better feeding. The growth of the school lunch movement directed attention to the health of the school child. Investigation in all our great cities revealed high percentages of undernourished, and the onset of the war raised these alarmingly. Studies by the Bureau of Child Hygiene in New York City showed in 1914, 5 per cent undernourished; in 1915, 6.5 per cent; in 1916, 15.6 per cent; and in 1917, 21.6 per cent. Disturbed by these figures,, and anxious to extend school lunches to a larger number, the Child Health Organization was formed in New York City, and soon made national through affiliation with the United States Department of Labor. This organization has carried on a campaign for the weighing of school children, and comparing of weight and height with standard tables, using those long familiar to some of us, prepared by Dr. Wood. This summer in New York City, in cooperation with the public schools, it has brought the children together to see and hear Cho-Cho the Clown, who goes through the health program of the child's day in his own inimitable fashion, and fixes ideas of health and diet in the minds of his youthful admirers.

For the idea of the health class, or nutrition clinic, we are indebted to Dr. Emerson, of Boston, who was the first to take advantage of group rivalry as a motive for health. It is proving a very effective means of teaching children about food. This summer I have had the pleasure of conducting such a clinic in connection with one of the play schools under the auspices of the Federation for Child Study. The one at Stuyvesant Neighborhood House was selected because of the large number of undernourished children in attendance. Twenty-five advanced students of dietetics at Teachers College participated in the work, under the immediate guidance of one of our staff, Mrs. Gertrude Gates Mudge. There were about seventy-five children between the ages of three and fourteen, and the clinic was held once a week. The mothers were urged to attend, and we usually had from twenty to twenty-five of them. Certain children were assigned to each student, and she visited them in their homes between sessions. At the clinic we talked to the children about food to make them big and strong. It was a great day when little Abie, six years old and seven pounds under weight, three teeth out and a bandage around a battered head, marched up to the platform to receive congratulations upon half a pound of flesh!

There were the usual evils to fight—late hours, irregular meals, food according to the whim of the child, often no provision of the kind he ought to have at all. But what the child wants he is most likely to get in these East-Side homes; so we worked to create new desires in the children. When Johnny wants to have milk instead of coffee for breakfast, so he can get a red star on his weight record at the clinic, mother will make an effort to get him milk if she is the right sort of mother, and most of ours were. One mother got her son a new cup and straws at the drug store because he could not get up much enthusiasm for the taste of milk at first, and the new tools helped. We gave the children samples of some of the foods they ought to eat, and showed the mothers how to make them. When they saw the children eating them at the clinic and had a chance to taste them, too, they were encouraged to try them at home. Excellent lunches were served at the school, a substantial noon meal, and milk and crackers in the afternoon; and a part of the object of the clinic was to help induce the children to eat the food so provided. It was strange, and they distrusted it. But they learned at the clinic that string beans help to make one grow, and ceased to pick them out of the soup. The clinic became so popular that one little girl who was round as a dumpling wanted to get thin so that she might come.

With milk stations for the babies, school lunches and health clinics for the child of school age, there is some hope of a time to come when one-third of the men of military age shall not be found so far below physical par as to be unacceptable for military service. The revelations of the draft boards are enough to stimulate a great campaign for better nutrition, if people can only be made to realize how far bad nutrition is responsible for the general low state of health.

Latest to receive any measure of attention is the child of pre-school age—that is, the child from two years to

six. The Children's Bureau in Washington is busy collecting information which ought to benefit him. We need more data on his food requirements and more practical experience under scientific direction to formulate clearly the food needs of this period. This is the most critical period in the formation of good eating habits, a time demanding constant education in eating. Until weaning time, food is the same for every meal and eaten in the simplest fashion, week in and week out. The old way, when a child was weaned, was to take him to the family table and offer him whatever happened to be on it. This has cost the lives of many, and started many more on the road to dyspepsia, tuberculosis, patent medicines, and the like.

The child of pre-school age needs individual care. He is hard to feed in an institution because he needs constant teaching—how to feed himself and how to learn to eat what he ought to eat. Usually he needs four or five meals a day. I know that there is a growing tendency to give him only three, but it is frequently impossible for little children to meet their high food requirements in three meals unless the food is selected with extraordinary care. Like most other points in feeding children of this age, this point is open to discussion, and much more trained observation is necessary to determine the best general practice. Any dietitian who is fortunate enough to have such children in large numbers to care for should make some carefully controlled studies of this matter. Several times lately, the condition of children in institutions where only three meals a day were given has been brought to my attention because the children were not getting enough to eat, but so many factors enter into a determination of how much a child eats that one cannot pass judgment offhand. Personally, I believe that four meals, practically equal in bulk, are better during the second and third years, and three heavier and one light during the fourth and fifth. Undernourished children often need five meals.

Because he needs so much supervision, the child of pre-school age should be fed away from the adult table as far as possible so that undivided attention can be given to his eating. His food should be measured out day by day. Here, again, what quantities are most ideal is uncertain. There is no dissent among the well-informed, I think, from the rule of at least a pint of milk per day. How much more he can profitably take needs further study. The Children's Bureau is advocating a pint and a half per day; in my classes and in *Feeding the Family*, I suggest a quart per day. Over a quart is impractical. Whatever amount is found best for the individual child should be definitely set aside for him every day. In institutions, the amount of milk furnished per child is a good criterion of the general character of the dietary. The blandness of milk, the ease with which it can be made the carrier of cereals, eggs, vegetables, even bread, in children's diets, gives it an important place aside from the fact that it is almost a "mixed diet" in itself. It has gone out of style to call milk "the perfect food," since no one food is that for the human organism (except breast milk for the first year), and all foods are good in their way, but it is the broadest base for the construction of an adequate diet, since it tends to make good the deficiencies of other foods in a variety of directions.

Food materials for children's diets should be chosen to meet definite needs and others withheld for the sake of simplicity. More data on how much cereal, bread, butter, eggs, fruit, and vegetables, can be used to the children's advantage, would help in teaching child-feeding to the inexperienced and make such teaching more convincing to those who think themselves experienced. Cooked cereals have a definite place because, being warm, bland, dilute (three-fourths water) they are specially easy to digest and help to maintain the normal appetite, especially if fed without sugar. Children who do not have cereal for breakfast are apt to be underfed. Sugar has too high a flavor and is too apt to be used inadvisedly, disturbing the appetite and upsetting digestion, to be permitted without definite restrictions. The impression that children crave sweets I do not believe to be well-founded. Well-fed children who have been observed in large numbers, do not exhibit any such symptom. One finds the sugar-eating at its worst among those who are given pennies to spend and are constantly tempted by the small vendor to invest in lollipops and the like, just for the fun of the spending. It seems to me that half an ounce of sugar a day is enough for the small child, but I should welcome some quantitative studies on this point. In any event, sweet foods should come at the end of the meal, so as not to impair the appetite for the other food.

Meat, with its high flavor, is also apt to have an undesirable effect on appetite, and one finds few reasons for using it in diets for little children. With a liberal supply of milk the protein requirement is sure to be met, and it is yet to be demonstrated that there is any gain from a very high protein intake—that is, more than 15 per cent of the total fuel in the form of protein. Any advantage accruing from meat can usually be secured in some other way. It is well to have this generally appreciated, since the tendency, where money for food is limited, is to spend an undue proportion for meat, with the result that the diet as a whole is unnecessarily poor. Lusk's rule for the family, not to buy meat until three quarts of milk have been purchased, is a practical one for the home, and should be imitated in the institution.

How many eggs? This is also an open question. There is a great deal of difference of opinion as to how little children tolerate eggs. Not over one a day would seem a good limitation for children generally. One yolk a day is enough for the pre-school age (or a whole egg every other day) after the second or third year. There is practically no place for the egg white in the diet of the second year. Some extensive, unprejudiced investigation of this matter is most desirable.

I have already referred to the early introduction of vegetables into children's diets as the most striking application of recent scientific knowledge to the practical dietary. Vegetables should be staples from the first year on, strained as well as cooked through the pre-school years, and selected with a view to a rich iron content and general ease of digestion. The milk-and-vegetable soup seems to me one of the most important dishes in the dietary of childhood. It should supersede the broth, which really has nothing to recommend it, and is another expensive nuisance like beef juice.

Fruits, like vegetables, now have a place in children's diets at an early age, as I have already pointed out. Many of them have considerable fuel value, and most of them contribute laxative qualities to the diet. Through the pre-school age they should as a rule be cooked and strained. I consider the strainer the most important tool in the preparation of children's food. Only mildly acid fruit juices or sifted pulp of perfectly ripe fruit should be given raw. A good illustration of what can be done by following this rule is the banana. This fruit, as ordinarily eaten, rather green, is unsuitable for children; but when really ripe (as shown by natural spotting of the skin with black) and thoroughly mashed, it has proven easy even for children a year and a half old to digest.

Fruit once a day for the first and second years, and after that once or twice a day, seems a good rule. In cases of obstinate constipation, fruit three times a day may prove beneficial. Coarse foods are not desirable laxatives for little children. The eating of fruit between meals should be absolutely forbidden. There should be no breaking over the rule of food at meal-time only. Many people do not consider the fruit "food" and hence need warning.

Children must be trained to regular meals from infancy. But they should have their minds trained to the idea in early childhood, as a safeguard for all their later years. They must be trained in the pre-school period to many new foods. This should be done only gradually, one new food at a time, and with as much emphasis as possible on why the food should be eaten. It is fine to hear a three-year-old say "Oatmeal and milk make me grow," or "I have a little engine in me and I have to fill it with bread to make my legs go." Children must be trained to mastication. This begins as soon as the teeth come, but becomes a conscious process in these pre-school years. Practically every meal should include a portion of some kind of hard or dry bread requiring chewing. Training in table manners, in eating what is set before one, in dining rather than feeding, are important parts of making the child a good social being, though they are less important than the training in what is good food and how to eat it.

The methods of food education are not essentially different from the methods of more conventional education; there must be patient repetition to establish good habits, the same food over and over again in the same way, until the liking for it has been fixed. Given time enough, and excluding food actually harmful to the individual, one can teach any child to eat anything. Children's meals whether in the individual home or the institution, are really classes in the food school. We need better food education for mothers and more food education of children in school. The spread of general home economics teaching, the work of such agencies as the Bureau of Child Hygiene, the Child Health Organization, and most recently of the Red Cross, have inaugurated the larger movement for children's health. Dietitians, on account of their training and their varied opportunities, have a special obligation to forward this work of food education.

## NEWS NOTES OF DIETITIANS

Miss Alice Hall, formerly of the Jewish Hospital, Philadelphia, has accepted a position as dietitian at Mount Sinai Hospital, New York. Miss Susan Walker who has been at the Mount Sinai has gone to Detroit, Mich., to manage a college club.

Miss Anne Boller of the Central Free Dispensary, Chicago, is spending a month visiting food clinics and other points of special interest relative to her work in the East. Miss Boller has, at the Central Free Dispensary, a clinic of 250 under-nourished children and 65 diabetics.

Miss Margaret Hoffman, A.B., University of Illinois, has accepted a position as assistant dietitian at New Haven, Hospital, New Haven, Conn.

Miss Sate Harris until recently dietitian at the Phillips House, Massachusetts General Hospital, has been made administrative dietitian of Massachusetts General Hospital, the appointment of Edith Lincoln as assistant dietitian in this hospital was mentioned in these columns in the October issue. Dietitians are watching with interest the progress being made in this particular dietary department because of the high standard which is being established. With Miss Harris and Miss Lincoln in charge, we anticipate that some very valuable contributions to dietetics will be forthcoming.

Miss Mildred Tabor has recently gone to the John Sealey Hospital, Galveston, Texas, as dietitian. Miss Tabor has been with the Food Administration since leaving the Illinois Central Hospital in Chicago.

Miss Mabel Little, who has been overseas for nearly two years, is now assistant manager of the system of restaurants in Columbus, Ohio, which have been known as the Busy Bee restaurants. The management, service, and name of these restaurants are to be changed. Miss Little has spent some time in New York City getting people and equipment for the new service.

Miss Elizabeth Masters has entered Speedwell Hospital, Guelph, Canada, as a student dietitian. Miss Masters has been county agent in the agriculture and home economics work of New York State.

## GREETINGS FROM "OVER THERE"

### Official Messages from France Indicate Widespread Interest in Convention of American Dietetic Association—Cooperation of Foreign Nations Seen

Of keen interest to those in attendance at the Second Annual Convention of the American Dietetic Association were the messages received from The Scientific Association for Food Hygiene, The Scientific Interallied Food Commission, and The Food Commission of the Society of Biology, Paris, France, and from the Du Pont Food Products Company, Baltimore, Md.

Many, however, were not present when these important greetings were read and, as several requests have been made for copies, the messages are here reproduced so that all our big family of dietitians may know the kindly interest and splendid spirit of cooperation which is being shown by those beyond the sea.

**Message From The Du Pont Food Products Company, Baltimore, Md.**

I can not express too strongly my feelings of regret for being unable to attend your convention. My factory is very busy, especially with export orders which are to be rushed. But I have worked so much that I had to take a rest. These lines ought to have been written more than a week ago, but I could not do it. Please excuse the delay.

I was so sure of having the pleasure of attending your convention that I wrote about it to Paris. The associations of which I am a corresponding member have sent me the enclosed messages which I would have been so glad to read myself to the convention. Will you please read same in my name?

Several documents are of interest to all, and I am ready to make excerpts of them for publication in THE MODERN HOSPITAL.

I would must appreciate if you would present and second a motion to the convention to endorse the work of the Scientific Interallied Food Commission, recommending the creation of a Scientific International Food Commission.

I would much appreciate clippings about the convention, and beg you to receive my best regards.—A. F. DU PONT.

**Message of The Scientific Association For Food Hygiene, Paris.**
**(Société Scientifique d'Hygiene Alimentaire, Paris.)**
(Declared of Public Utility by Decree of the President of the Republic, July 27, 1904.)

Presented to the Convention by A. F. Du Pont, Baltimore, Md.

President: Dr. Gariel, member of the Academy of Medicine, founded in 1666; vice-president of the High Committee of Public Hygiene of France.

Vice-Presidents: Dr. A. d'Arsonval, member of the Institute of France, founded in 1640; member of the Academy of Medicine of France, founded in 1666; professor at the College of France, founded in 1530; G. Griolet, Honorary Master of the Council of State of France; Dr. M. Letulle, Member of the Academy of Medicine of France, Professor of Medicine at the Sorbonne, founded in 1265; Dr. Moussu, Professor at the National College of Alfort; Dr. Charles Richet, Member of the Institut of France, Member of the Academy of Medicine, Professor of Medicine at the Sorbonne.

Members: Dr. Gley, Member of the Academy of Medicine, Professor at the College of France; A. Haller, Member of the Institut of France, Professor at the Faculty of Sciences of the Sorbonne; M.: Maquenne, Member of the Institut of France, Professor at the Museum of Natural History of France, founded in 1628; Dr. Paul Regnard, Member of the Academy of Medicine of France, Member of the Academy of Agriculture of France, founded in 1747, Member of the High Committee of Public Instruction of France; Dr. Emile Roux, Member of the Institut of France, Member of the Academy of Medicine of France, Director of the Pasteur Institute of France, President of the High Council of Public Hygiene of France; Mr. Jules Siedfried, M.P., former Secretary of State.

Secretaries: Dr. Henri Labbe, D.Sc., Professor at the Faculty of Medicine of the Sorbonne; M. Kohn-Abrest, D.Sc., Director of the Laboratory of Toxicology.

Director of Calorimetry: J. Lefevre, Professor at the Lyceé Pasteur.

General Secretary: J. Alquier.

Honorary members in the United States: Prof. Francis G. Benedict, Boston, Mass; Dr. Russell H. Chittenden, Yale University; Dr. C. F. Langworthy, Washington; Dr. Lafayette B. Mendel, Yale University.

**Message of the Scientific Association For Food Hygiene, Paris.***

The Association sends its best greetings and wishes for the work of the Conventions and of its members, but regrets deeply that, after five years of war, the Association has all its members taking their vacation and cannot send communication of special works. It is the first time since 1913 that the board has stopped its meetings for three months. The present message was decided at a special meeting held by the few members of the board still in Paris. The Association is glad to proclaim that its works are made under the auspices of the famous Professor Atwater, whose works are in high esteem among the members of the Association.

The building of the new laboratories and mansion of the Association were just completed in 1914; the buildings are large and well equipped. A new laboratory for Calorimetry is under completion. The Association takes the liberty of calling the attention of the Convention to the proposed Scientific International Food Commission, and hopes that the conclusion of the report of the Scientific Interallied Food Commission will be endorsed by the Convention.

Such institutions will promote the co-operation of dietitians all over the world and help to impart a knowledge of foods, nutrition, and dietetics.

(Note of the Corresponding Member, A. F. Du Pont: I have here, in Baltimore, the bulletins of the Association since 1911 and will be glad to send excerpts (in English) of all questions which may be of interest.)

**Message of the Scientific Interallied Food Commission, Paris.**
**(Commission Scientifique Interalliée du Ravitaillement.)**

Presented to the Convention by A. F. Du Pont, Baltimore, Md., corresponding member.

Enclosed the text (in French) of the resolution and project of convention regarding the organization of a Scientific International Food Commission, as recommended by the above Scientific Interallied Food Commission, in its meetings of May, 1919, in Brussels.

The delegates of the United States to the Scientific Interallied Commission were: Chittenden and Lusk, Paris, March, 1918; Rome, April-May, 1918; and London, June, 1918. Dana Durand and Kellogg, Paris, October, 1918; Lafayette Mendel and Armsby, Rome-Naples, December, 1918; Alonzo Taylor and Dana Durand, Bruxelles, May, 1919.

**Message of the National Association of Acclimatation of France.**
**(Declared of Public Utility By Imperial Decree of 1858.)**

President: Edmond Perrier, Member of the Institute of France, Member of the Academy of Medicine, and Director of the Museum of Natural History, founded in 1628.

Presented to the Convention by A. F. Du Pont, Baltimore, Md., corresponding member.

The Association will be very pleased to come in closer touch with the American Hospital Association and the American Dietetic Association, through its corresponding member.

The Association deeply regrets that the news of the conventions in Cincinnati reached Paris after the last annual meeting of the season; the next meeting will be held in October.

The Association sends its best greetings to the members of the two conventions and wishes the best results to its works.

The Association has been interested in food and dietetics since its foundation in 1854; the last meeting of the Association was ended by the annual lunch, which was composed exclusively of rice cooked and prepared according to French, Italian, Chinese, and Tonkinese recipes, which we gladly send you by same mail and which will be translated into English by our corresponding member, A. F. Du Pont.

**Message of the Food Commission of the Society of Biology, Paris.**
**(Commission d'Alimentation de la Société de Biologie)**

President: Charles Richet, Member of the Institute of France, founded in 1640, Member of the Academy of Medicine, founded in 1666.

Vice-President: E. Gley, Member of the Academy of Medicine, founded 1666, Professor at the College de France, founded in 1530.

Presented to the Conventions by A. F. Du Pont, Baltimore, Md.

The Food Commission of the Society of Biology of Paris sends its heartfelt greetings to the convention and its best wishes for fruitful results of its work.

The Commission has the honor of presenting to the Convention the full text of its works during the war, The Scientific Problems of Nutrition in France During the War*; also The Analytical Bibliography of the French works published during the war.

### Hair-Cut and Bath Campaign Launched

The entire population of Poland by virtue of an official proclamation must have its hair cut, this being a part of the campaign which the government, in conjunction with the American Red Cross, is planning against typhus. Likewise every man, woman, and child must be bathed. Hair-cuts and baths are necessary because typhus is carried by body lice. Already there are 100,000 cases of the disease, and the health authorities have decided that, in order to stem the epidemic, more than 5,000,000 people must have their hair cut, be bathed, and reclothed.

*I will gladly translate and make excerpts of these important contributions to Food and Nutrition.—A. F. Du Pont.

# HEALTH AND MODERN INDUSTRY

Conducted by BARROW B. LYONS
*Superintendent Delaware Hospital, Wilmington, Del.*

## COMING OF COMPULSORY HEALTH INSURANCE*

### The Logical Next Step Following Workmen's Compensation—Passage of Bill by New York Senate Indicative of Progress Toward Protection

"Compulsory health insurance for wage earners, including maternity benefits, is coming soon in the United States, despite the misrepresentations and active resistance of an interested opposition. It is the logical next step following workmen's compensation, which in eight years has been adopted by forty-one states and three territories and by the Federal government for its million civilian employees. And what opposition there is now to health insurance laws is of the same character as that directed against workmen's compensation eight years ago—opposition that in the light of successful experience now is seen to have been wholly misguided.

"The passage of a compulsory health insurance bill by the Republican New York Senate at the last session, as strongly urged by the Democratic governor, marks the high point of progress in this country toward such protection for the workers against sickness. For the first time a legislative body has taken this advanced action. It would also have passed the Assembly and become a law, according to the Governor, if it had not been prevented from coming to a vote on the floor of the house by arbitrary resort of the opposition to antiquated caucus rules. It is significant that the metropolitan press of New York was almost a unit in denouncing the defeat of this well-considered measure. This favorable action came only after several years of preparation and education. The health insurance bill was solidly supported by an imposing array of prominent civic, women's and social service organizations, by the State Federation of Labor, and many far-sighted employers and physicians.

"Just as workmen's compensation protects the workers against industrial injuries, so will health insurance protect them against the far greater hazard of ill health. To be effective, health insurance must be compulsory. No other plan will work. That has been found true in Europe in the ten leading countries that have tried out workmen's health insurance. Only by making it universal can it be made to cover large numbers and reach those who are most in need of this protection, those nearest the line of bare existence, to whom a spell of sickness so frequently means dependency. By making it compulsory, the heavy acquisition and administrative costs are eliminated, private profits abolished, and more adequate benefits made possible. Furthermore, this protection becomes

*This article is extracted from the address of John B. Andrews, secretary of the American Association for Labor Legislation, before the meeting of the National Conference of Jewish Charities, Atlantic City, 1919.

automatic, following the worker wherever his employment may take him within the jurisdiction of the law.

"Compulsory health insurance will serve to relieve charity of much of its already too heavy burden both by caring for the sick wage-earners when ill and by stimulating preventive measures. In urging this legislation the New York State Board of Charities reports that a very large per cent of dependency is due to sickness. In the eight states where official commissions have been studying sickness conditions among workers with a view to health insurance legislation, similar relation of sickness to poverty has been found.

## PLEASANTNESS AS A BASIS OF TREATMENT

### How the Medical Department of a Large Industry Won Over Its Patients by Adopting the Principles of Humanity

By C. F. N. SCHRAM, M. D., Medical Director, Fairbanks, Morse & Co., Beloit, Wis.

Starting with the idea that the medical department should be the most pleasant department in the plant, we succeeded in solving part of the problem of getting men to report accidents and return for redressings. We neither hired nor fired; nor was it up to us to boss the job of the patient or censor him because his accident was caused by carelessness. Treatment was the beginning and end of our obligation, and pleasantness is part of good treatment. Of course, we had to take histories of the accidents, but this part of our work was also done in a pleasant manner. Correction of poor safety habits was, we felt, up to the Safety Department, and we cooperated with that department in every way.

Our personnel was selected with the idea of having a force which was not only efficient, but congenial to the patient as well.

Delayed reports proved quite a problem. The worker got hurt and in his mind the injury was too insignificant even to make a report to his foreman, without thinking of going to the hospital. A few days later, due to lack of care, an infection set in. If the bruise turned out worse than he thought it was going to be, he presented himself for treatment. Many men gave the excuse that they were too busy to come over at the time of the injury.

The correction of this fault was not ours. So we sent out to the head of each department at the end of the month a statement telling him the percentage of delayed reports from his department that had come to our attention during the preceding month; that is, if a department reported three injuries in a month and one was delayed, the percentage of delayed reports from that department was listed as 33⅓. We added to this the key numbers listed as delayed. The first month only one department reported 100 per cent perfect—that is, with no delayed reports. For the last four or five months we have had four perfect records, and for the past two months we have reached a total of five. By providing the superintendent the key numbers we gave him or the foreman a chance to go to the worker and say, "You had an accident this past month, and did not report it immediately. Why?"

I might note in passing that all injuries two hours old, and over, are listed as "delayed." This problem may sound a little overdrawn to many manufacturers, but where there are many foreigners it is a vital one, and we feel that we have at least partially solved it.

To sum it all up in a single sentence: Most problems are human or deal with humans, and they are, therefore, best met by being human.

## WHAT MEMBER OF THE STAFF IS TO TAKE THE INDUSTRIAL ACCIDENT CASES?

### If Staff Member Is Employed by An Industrial Concern, Should He Be Granted Ward Privileges When Not on Ward Service?

The problem of what member of the staff was to handle the various types of cases coming to the Delaware Hospital under the Workmen's Compensation Act gave rise to the formulation of a set of rules. These rules govern dispensary and ward cases, but do not govern such cases as may be taken into private rooms. When a patient is taken to a private room he is considered a private patient of whatever physician he may select.

For the interest of hospital superintendents who have had similar problems, the rules adopted at the Delaware Hospital are here reprinted:

"The surgical chief on service shall be responsible for the surgical care of injured employees whose treatment is rendered under the Workingmen's Compensation Act of Delaware, unless a specific request is made by the employer at the time of admittance that the injured person be considered the private patient of a stated surgeon, or unless a standing agreement is made with the concern sending the patient that a certain surgeon is to treat their cases. An exception is also made where the case requires the services of a specialist.

"Only such industrial cases will be considered private cases as the chief resident of the hospital considers are in need of being admitted to a hospital bed. All surgical dispensary cases will come under the service of the surgical chief. If a question is raised by a member of the staff regarding the judgment of the chief resident as to whether or not a case should be admitted to a bed, the case shall be temporarily admitted to the detention ward pending the judgment of the medical board.

"When an industrial accident case applies for surgical attention as the private case of a stated surgeon, if the case is not one which needs to be admitted to a bed, it shall be referred to the surgeon's private office without treatment.

"Industrial cases which need only dispensary care shall be treated under the supervision of the chief resident, who shall be held directly responsible to the surgical chief on service for the surgical attention rendered, unless the case requires the attention of a specialist, in which event the specialist to whom the case is referred shall be responsible for the service rendered.

"When an industrial accident case is referred to the private office of a specialist, unless the case was sent in as a private case, it shall still be considered a dispensary case sent to the office of the specialist to serve his convenience. Charges for all such cases shall be collected by the hospital for the specialist in accordance with the surgeon's fee schedule adopted by the board of trustees.

"The chief resident shall examine every industrial case applying for admission in order that the closest cooperation may be obtained with industrial concerns and their employees. However, no industrial accident case for which admittance has been requested shall be refused when there is a reasonable doubt as to the need for admitting the case."

When a surgeon is in the employ of an insurance company the hospital does not attempt to fix a fee for his services rendered to injured employees insured under his company, neither does the hospital attempt to fix a fee for surgeon's services when the surgeon is in the employ of an industrial concern whose injured employees he is caring for at the hospital; but, when an injured employee is referred to a surgeon who is not employed by the concern from which he comes, or by the insurance company carrying compensation insurance for them, the hospital prescribes a schedule of fees in accordance with which the surgeons' charges must be made.

Under the laws of Delaware it is not always possible for the hospital to collect these fees for the surgeon, but an attempt at least is always made.

# DISPENSARY AND OUT-PATIENT WORK

Conducted by MICHAEL M. DAVIS, Jr.
*Director of the Boston Dispensary.*
Please address items of news and inquiries regarding Dispensary and Out-Patient Work to the editor of this department, 25 Bennett street, Boston, Mass.

## OUT-PATIENT DEPARTMENTS IN ILLINOIS

### Chicago Health Centers Poorly Equipped—Need More Generous Support By Communities if They Are To Serve As a Protection Against Disease

Interesting statistics as to the status of dispensaries and out-patient departments in Illinois, particularly in Chicago, are found in the report of the Illinois Health Insurance Commission.

DISPENSARIES IN CHICAGO

| | | |
|---|---|---|
| General dispensaries | | 19 |
| Special dispensaries: | | |
| Eye, ear, nose, and throat | 2 | |
| Women and children | 4 | |
| Children | 4 | |
| Obstetrics | 2 | |
| Venereal disease | 2 | |
| Osteopathy, chiropractic, etc. | 5 | |
| Dental | 14 | |
| Tuberculosis | 8 | |
| | | 41 |
| | | 60 |

ILLINOIS OUTSIDE OF CHICAGO

| | | |
|---|---|---|
| General dispensaries | | 8 |
| Special dispensaries: | | |
| Tuberculosis | 18 | |
| Infantile paralysis | 11 | |
| Other special dispensaries | 8 | |
| | | 37 |
| | | 45 |

The above list does not include certain types of institutions. Those excluded are: "(1) dispensaries operated by city and county physicians; (2) clinics affiliated with the schools of chiropody, of which there are three in Chicago; (3) infant welfare stations, of which there are many in Chicago and a smaller number in other cities of the state; (4) hospital out-patient departments maintained by corporations for the treatment of employees; and (5) out-patient departments of the United States Marine Hospitals at Cairo and Chicago maintained for the treatment of members of the Merchant Marine."

These dispensaries provide medical service for a very large number of persons. "The number of visits made to them by patients during the last year approximated 860,000. Of this number 835,000 visits were made to Chicago dispensaries. How many different patients were treated cannot be so accurately estimated because of the system of records kept. There is a quite general acceptance among dispensary officials of the estimated average of four visits per patient. On this basis, 215,000 persons in Illinois sought treatment last year in dispensaries. Of this number, 208,750 visited Chicago dispensaries. Taken in relation to population these figures indicate that in the state as a whole seven out of every two hundred people sought medical service in these institutions. In Chicago the figures were seventeen out of every 200.

"The average cost of patients' visits was found to vary from eleven cents in institutions in which costs of heat, light, rent, etc., were not included, to 78 cents in the case of one Chicago dispensary with all such expenses included. It must be borne in mind, however, that practically all of the medical service in dispensaries is given free of charge by the attending physicians."

The conclusions regarding dispensaries in Chicago are thus summarized by the Illinois Health Insurance Commission:

"The Commission's investigation has shown that dispensaries are important factors in providing medical service for the poor, and for people of moderate means. The location of Chicago dispensaries is not well adapted to the needs of the people for ready access to such institutions. Many dispensaries need improved quarters, equipment, and record systems, and more doctors, social workers, and clerks. Fundamentally, the problem of better dispensary service is a question of more generous support on the part of the community. Dispensaries are a part of the community's equipment for protection against disease and for health conservation, and in the long run a community's health bears a close relation to what it is willing to spend for such protection and conservation."

## A NEW BLOW AT AN OLD BUGBEAR

### Pay Clinics and Compensation for Physicians Will Lessen Dispensary Abuse—Type of Needed Service Important in Determining Worthiness of Patient—Tendency Is To Extend Work To People of Moderate Income

A notable account of the condition of dispensaries in Chicago is given in the report of the Illinois Health Insurance Commission just issued. Shall hospital superintendents worry about dispensary abuse (namely, the exclusion of those patients who can afford to pay for private medical treatment), or shall they worry about dispensary efficiency (the furnishing of the best kind of medical service to the patients who are admitted)? The Illinois report furnishes the following answer to these questions:

"As dispensaries have increased in number and as their work has increased in volume, there has been the not infrequent criticism on the part of individual physicians and medical societies that dispensaries bestow medical charity upon people who have no valid claim to it, and who can well afford to pay for medical service. As long as dispensaries are primarily charitable institutions in which doctors receive no financial compensation for their services, they should be careful, as should other charitable agencies, to see that only those who need such free service receive it. Dispensaries differ greatly from each other as to the care they exercise in limiting their service to *bona fide* members of the charity group. Some admit every applicant; others make financial investigations of practically all their patients and exclude all whose incomes are above a fixed standard; still others fall between these two extremes, taking what seem to them to be reasonable precautions to keep out the financially ineligible.

"Careful investigations have been made at different times in Boston, New York, St. Louis, and other cities of a considerable number of dispensary patients, to ascertain their claim to free medical service. These investigations have shown that only a small percentage, from two to five, of dispensary patients are really able to pay for the medical service they seek to obtain free or upon payment of a nominal fee. "In our study of 2,869[1] fam-

1. This figure includes only those families for whom complete income statements could be obtained.

ilies in Chicago (charity cases excluded) it was found that 511 families, or 17.8 per cent, had received some form of dispensary service for one or more members within the preceding twelve months.

Budget studies made in North Chicago, and investigations made by the Bureau of Labor Statistics and by the War Labor Board indicate that for a family of five (man, wife and three children under fifteen), an income of $1,700 per year is necessary to meet all normal family expenses including sickness costs. Using this figure as a basis of classification of the 2,869 families, we find that 1,717 had incomes of $1,700 or over, or equivalent sums for smaller or larger families, as against 1,152 with smaller incomes. Of the 511 families receiving dispensary service, 102 were in the group with the larger income (with a minimum of $1,700 or its equivalent). Of these 102 families, 24 were given service in municipal tuberculosis clinics, infant welfare stations, or in special clinics established for after-care of infantile paralysis, which institutions, for obvious reasons, do not limit their service to any economic group. This leaves 78 families in the higher income group receiving medical advice and treatment in dispensaries which, in general, confine their service to people of very limited income. These 78 families are 15.2 per cent of the 511 families with dispensary records.

"It is well to bear in mind, however, that the type of medical service needed is important in determining whether or not a patient is worthy of dispensary treatment. One may be well able to pay a general practitioner for treatment of a minor ailment or one of short duration, but unable to pay for a specialist's service if needed, or for treatment continuing through a long period of time. On the basis of type of service needed, these 78 families divide into 55 whose condition of illness indicated the need of specialist service and 23 who, presumably, could have obtained all needed service from a general practitioner. From this analysis we may conclude that 23 families out of a total of 511, or 4.5 per cent, were recipients of medical charity which their economic status did not justify. This figure closely approximates the findings of the investigations in Boston, New York, and St. Louis mentioned above.

"The public health dispensaries, for example, those conducted by infant welfare organizations and by public or private agencies for the treatment of tuberculosis, usually treat all who apply regardless of financial ability. If pay clinics are established and with them a system of compensating dispensary physicians for their services, the question of dispensary abuse will tend to disappear. . .

"As stated above, there seems to be developing a tendency to extend the work of the dispensary beyond the group who seek its service as a charity, to people of low or moderate income. To the public this means a more extensive utilization of the medical skill, equipment, and organization found in the dispensary. It means pay clinics; adequate medical service within the means of a larger part of our population. From the standpoint of the physician it is a step in the development of group medicine or organized institutional medical practice."

### Why Not Be a Miller, Bud?

Flour milling as a vocation for disabled soldiers, sailors, and marines is recommended by the Federal Board for Vocational Education in a pamphlet recently issued. The various kinds of work to be done are described, and the qualifications and the amount of schooling necessary to carry them on are given, as well as information as to where proper training may be secured.

# LETTERS TO THE EDITOR

### Architect Replies to Criticisms

To the Editor of THE MODERN HOSPITAL:

We are glad of the opportunity to answer the criticisms of the plans of the Blodgett Memorial Hospital at Grand Rapids which have come to us as a result of the publication of the article on it.

We wrote our client asking his permission to give you the cost of this hospital and have had a reply from him stating that, as the building was erected in 1915, the actual cost would be of little interest. He suggests that we send you the estimated cost of this building assuming that the contracts were let at this time. This cost, we believe, would amount to $819,026.

The power plant and laundry were placed in the hospital to save the additional expense of a separate building (which was found to be considerable); to avoid carting to and from the laundry and to provide better supervision of these two departments. The contours of the land made it possible to get a light basement and subbasement. All the power machines are on foundations isolated from the rest of the structure, and the ceilings of the boiler and engine rooms are insulated so that there is no noise or heat transmitted to the floors above.

To avoid unnecessary labor, we think that the proper place for the garbage destructor is in the hospital building. There should be no annoyance from odors if the refuse room is properly designed and equipped with a drain and hot water for cleaning.

It is much more convenient to have the large clothes sterilizer in the hospital building, as, with proper arrangement of air-tight doors, no odors can reach the other parts of the building.

It is obvious that at certain times of the day, with only two elevators, one car would be used for passenger service and the other for carrying patients to and from the operating department. In this case the elevators are about as far from the wards as could be planned and are equipped with noiseless door-closing devices, making it impossible for the doors to slam. If the elevators do not open on the main corridor, it is more difficult to handle the stretchers.

The treatment in this particular hospital does not call for more than one service room on a floor. To avoid a long carry, hoppers and bedpan warmers were placed in each of the ward toilet rooms. We believe it to be a debatable question whether one or two large store rooms are better than small closets for linen and supplies for each ward.

If a surgical dressing room is required for the number of patients cared for on each floor, we do not see how it could be better placed than near the center of the building.

You suggest that one or two more sound-proof labor rooms would be helpful in the maternity section. As this

"A Notable and Splendid Memorial Hospital" was published in the October issue, p. 268.

service is not large, we are certain that this would be an extravagance, for the two delivery rooms are used frequently for labor rooms and have proved thoroughly satisfactory. They are equipped with double doors, making them practically sound-proof.

The service here is quite different from most general hospitals, and the building has proved satisfatcory under actual working conditions during the last four years.

YORK & SAWYER, Architects,
New York City.

* * * *

### First Training School for Nurses in Canada

To the Editor of THE MODERN HOSPITAL:

Will you kindly correct a statement made by Miss Maude McLeod, superintendent of nurses, Vancouver General Hospital, Vancouver, B. C., in her article, "The Modern Trained Nurse," which appeared in the July number of this magazine, which I quote: "Sufficient to say that the Montreal General Hospital can boast of the first training school for nurses in Canada." The first training school for nurses in Canada was founded by Dr. Mack, of St. Catherines, Ont., and was opened in the year 1872 by a sister of Miss Nightingale's group, a superintendent, selected by Miss Nightingale herself to start this important work, at Dr. Mack's request.

The title of the school, which was authorized to issue diplomas, is "The Mack Training School for Nurses," in connection with the General and Marine Hospital, St. Catherines, Ont., Canada. An account of this school can be found in the "History of Nursing" by Miss Nutting and Miss Dock, in which the school is referred to as "the historical school of Canada." This school is still in existence and issues diplomas.

There is a slight difference between the years of 1872 and 1890, as stated in Miss McLeod's article as being the date of the Montreal General Hospital school. I might also add, that the Toronto General Hospital had opened its school for nurses previous to that date, under Miss Snively as superintendent.

M. EUGENIE HIBBARD.
Vedado, Habana, Cuba.

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### Hospitals and Medical Care in Australia

To the Editor of THE MODERN HOSPITAL:

You desire to learn "how we have solved the problem of medical and hospital care for people in the vast thinly settled parts." I am afraid the problem still awaits solution. Comparatively few of the country townships have public hospitals. In all townships sufficiently large to maintain a local doctor, private hospitals have been established either by nurses or doctors. These are mainly used by patients who live in the bush. The expression "living in the bush" indicates in Australia that the person lives several miles out of a township in a pastoral or agricultural area. "Bush" does not necessarily mean a forest; it may even connote a treeless plain.

Not many years ago, it was customary for the doctor to be called very many miles to see patients. Very often only one visit was practicable—it being impossible for the doctor to cover the necessary distances over bad roads when he had several patients widely apart. In some cases, the doctor would require a day or more to reach his patient.

The practice now is to bring the patients—particularly midwifery patients—to private hospitals. The doctor is thus enabled to devote more attention to his cases and the patient is saved the mileage rates which are necessitated by loss of time occupied in traveling.

These private hospitals are often very modest structures, but they are certainly useful under the circumstances. Transport of the sick in country districts is rather a difficult matter. The demand for an ambulance service in country districts is too small to justify any person or body maintaining such a service. Country roads are not suitable for motors but if they were, the cost ($300 for the cheapest) is beyond the purse of the average farmer. Consequently, patients have to be carried from the farm to the township by ordinary horse vehicles.

E. ROBERTSON,
Secretary, Public Health Department, Melbourne, Australia.

## "KALIFORNIA HOSPITAL KAFETERIA"

### A Result of Lack of Dining Room Help—Facilitates Service and Lessens Expense—Meets With Entire Approval of Nurses

The cafeteria movement in hospitals which started in the East has reached the western boundaries of the country, the California Hospital at San Francisco having taken up the plan.

"We hesitated to try it," writes Anna A. Williamson, superintendent of nurses, in *The Pacific Coast Journal of Nursing*, "fearing that after going to the expense of putting in the necessary equipment, it might not prove all we wished it to be. But the serious problem of securing any help for the dining room hastened our decision."

It took about two weeks to make the necessary changes. During that time meals were served in a classroom adjoining the dining room, the overflow occupying the hall.

The line forms in the hall and on entering the room, keeps to the right. The trays come first, next the silver in boxes, then paper napkins folded so that they can be handled easily, next the butter in small patties, and after that the steam table. The first woman serves soup and meat, the man who stands next adds potato and gravy, serving the vegetable in a separate dish. One woman serves both dessert and tea, except when there is ice cream. In that event, the baker from the kitchen is pressed into service for the first rush, after which it is taken care of by a woman.

Bread, water, and milk are placed on the tables, with a glass at each plate, and salt and pepper at convenient distances. When served, the nurse goes to her place, removes the food from the tray, and places the latter on a side table reserved for that purpose. As soon as the last one passes the steam table, the man leaves his place and refills milk and water pitchers, replenishes bread plates, and removes soiled dishes, the two women behind the counter taking care of those who come late.

Breakfast is served from 6:40 to 7:50 a.m.; dinner from 11:30 a.m. to 12:50 p.m.; and supper from 5:30 to 6:50 p.m. The dining room seats eighty-five at one time and about 200 can be served between the hours given. The service has been in operation about two months, "and," says Miss Williamson, "we wonder how we ever endured the old way with its indifferent service, cold foods, and mussy dining room. Now we have hot dishes hot, cold dishes cold, and only take what we wish to eat, as we can quickly secure a second portion if we desire.

The midnight supper is not served on the cafeteria plan, but by one of the night men, the menu being arranged by the dietitian. At this meal, hot soup, meat or meat substitute, a relish or salad, a pudding, fresh fruit, or frozen dessert are served together with bread, butter, and hot coffee with cream.

The total initial expense of the undertaking was $294.67.

# QUERIES AND ANSWERS

### Organization of Hospital in a Small Town

To the Editor of THE MODERN HOSPITAL:

I am seeking information relative to the best form of organization from the standpoint of efficiency for a hospital in a town of about 25,000 population. Like all small towns, there are many petty differences so that it is practically impossible to get anything like unanimity of thought or action on any matter. The hospital we are operating is an old one and has always been sectarian, but we will have a new 54-bed building within a year. At present it is operated by an Advisory Board the members of which are representative women. The board leases the hospital for $1 a year from the board of managers, collects and disburses all money, and employs and discharges all help. The board of managers, over the membership of which there has been some contention, merely act as trustees for the $50,000 endowment fund. The hospital must remain sectarian, but we want the kind of organization that will get the most and best service out of every dollar for the people who use the hospital. I would also like to know how far in the interest of efficiency, women may be used on the managing board.

CITIZEN OF A SMALL TOWN.

Reports so far received, and results shown by the management of hospitals by women's board have not been encouraging, that is, where the women's board has really had anything to do with the actual management of the institution. In fact, the same thing may be said of boards composed of men, if these boards attempt to exercise executive control. The women's boards seem to have worked out well and have proved of great value as auxiliaries which have made money and furnished needed supplies, but they have made impossible working conditions and have stood in the way of hospital progress where they had actual control.

Your plan of making the hospital open-door and non-sectarian in its policy is the one which has always seemed best in a city of your size and in a hospital of this number of beds. The plan of 50 per cent representation on your board is a fair one, and really should not meet with opposition. If you should have a non-sectarian board, both men and women, representing the different elements for good in your community to act as advisors and to give support to your superintendent, you will be carrying out the functions of the board of trustees as it is considered standard to-day.

This board should not be large—not more than six or eight at the most. The rest of your members, to satisfy everybody and avoid hurting any one's feelings, could be formed into an auxiliary to raise money and to furnish things needed.

Your executive, responsible only to the central organization, should be an experienced superintendent. For an institution the size of yours, the best choice would be a capable woman who is a graduate registered nurse and she should be given entire charge of the actual running machinery in the hospital without outside interference. As we have said before, the function of the board of control is advisory and must be in the nature of a support—helpfully critical, not actually executive. It may be shown that end-results have proved this method of hospital administration to be the present standard method of efficiency. The older methods where the committee actually attempted the hospital management should go to the scrap heap, because experience has shown that they have brought friction and heartaches and have stood in the way of progress.

Try to make your people understand that the hospital means first an educational institution, a workshop for your physicians and nurses; a place where the welfare of your patients must come first, last, and always; and that petty personalities and factions are clogs in institutional machinery and an abomination in the sight of the Lord Almighty.

As they say, a prophet is of little honor in his own country, so perhaps if you should send for some well-known hospital administrator to talk to your people you might get quicker results. You may find some useful suggestions in Dr. Hornsby's article[1] on the standardization of hospitals.

* * * *

### Ridding the Premises of Mice

To the Editor of THE MODERN HOSPITAL:

We have been practically overrun with mice. Can you suggest something which will effectually rid us of this pest?

HOSPITAL SUPERINTENDENT.

Getting rid of mice means eternal warfare. You will have to use traps, poisons, plug their holes with cement, concrete, or plaster and just keep everlastingly at it. You might try some of the standard paste exterminators if you have not already done so. If you follow their directions, the mice will come out on the floor after water and die there, when you will be able to throw them out and they will not give rise to odors.

The first thing to do is to set somebody on the job who will be responsible for it and whose duty it will be to keep at it. What is everybody's business is nobody's business and you will never be able to count on your nurses or your domestics.

* * * *

### Pictures for Convalescent Rooms of Hospital

To the Editor of THE MODERN HOSPITAL:

Will you be good enough to suggest a list of suitable pictures for the reception and convalescent rooms of a 16-bed community hospital?

SUPERINTENDENT OF OHIO HOSPITAL.

The question you ask is of considerable interest and importance, for many times not enough attention is paid to the effect of his surroundings on the convalescent patient. I dare not attempt, however, to give anything approximating a complete list of pictures for your hospital, although I may suggest a class. The pictures should be cheerful subjects and as far removed from suggestions of a hospital atmosphere as possible. Water pictures are excellent, especially those showing the ocean in motion; grazing cows and horses in pasture are other good subjects. There are three suggestions in this selection: (1) nature, (2) repose and quiet, (3) getting away from hospitals and sickness. Among these classes I might mention: "A Sunset on the Desert"; "Sunset," and "Scene by a Brook," Corot; "Shorebound Waves," Rehn; "The Oyster Gatherers," Sargent; "The Fairy Pool," in colors, Jessie Wilcox Smith; "The Children's Hour" and "The Lord Is My Shepherd," Taylor; "The Bird's Nest," Baer; "Twilight and Poppies," Coleman; "The Brook,"

1. "Class V Semi-Public Community Hospitals," THE MODERN HOSPITAL, Vol. VII (November, 1916).

Couse; "Peace and Plenty," Inness; "A November Day," Mauve; "The Old Mill," Bunner; "The Smithy," Herring; "Song of The Lark," Breton; "Can't You Talk," Holmes; "The Wave," James; "The Angelus," and "Planting Potatoes," Millet; "Call to The Ferryman," Knight; "Hiawatha," Norris; "The Helping Hand," Renouf; "Holy Night," Correggio; and "The Windmill," Ruysdael.

These, many of which may be had in the Copley prints, range in price from $3 for one ten by twelve inches, to $12 for one twenty-four by thirty-four inches.

## THE CHILD FOREMOST AMONG RECONSTRUCTION PROBLEMS

### "Children's Year" Inaugurated to Counteract Destructive Tendencies of War in Regard to Child Life—Program Includes Betterment of All Classes

Because the war has, in large measure, tended to destroy his rightful heritage, the child now stands foremost among reconstruction problems of the country, says Sarah Mackler in *The Pacific Coast Journal of Nursing*. As a beginning of the solution, "Children's Year" is to be featured by the Children's Bureau of the Child Welfare Department.

A working program has been prepared, the plans being grouped. Four groups are concerned with the needs of normal children in their own normal homes, the fifth being the special problems of children whose homes have been broken up, or who, for any reason, need special care.

The success of the plan depends upon the activity of the local committees and the cooperation of individuals. The first community activity is the nation-wide weighing and measuring tests of young children.

As the life, health, and normal development of the child depend largely upon the health and protection of the mother, one of the most important topics is public protection of mothers, infants, and small children. Home care and income will also be taken into consideration, as infant mortality among babies of working mothers is found to be considerably higher than that among babies whose mothers do not have to work.

The burden of support should not be placed upon young children; hence cities should be on guard against special exemptions from state child labor and school exemption laws. The development of constructive measures to meet conditions which lead to the employment of children is urged.

The neglect of recreation for children, and special care for the blind, the deformed, the foundling, and the delinquent form part of the program. Among corrective measures advocated are the prevention of blindness by treatment of the eyes immediately after birth, the control of epidemics of trachoma, and the establishment of schools for the blind. The placing of deformed or crippled children in special institutions where the deformity may be corrected and where occupations suiting the degree of the deformity are taught, is also urged. The foundling and illegitimate child offer unusual opportunities for real service to nurses and social workers. The delinquent should have proper supervision and guidance to prevent its drifting gradually into a life of crime.

In order that the program of "Children's Year" may be successful, every large city should establish milk stations in the most densely populated parts, where mothers can secure a sufficient supply of good milk for their infants, and also obtain information as to proper care of them.

# NEW INSTRUMENTS AND EQUIPMENT

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### Portable Orthopedic Frame

This apparatus has been designed by Dr. R. D. Maddox, Cincinnati, Ohio, with the view to giving the surgeon who at times is called away from his hospital base a practical fracture and extension apparatus which he may take along with him without too much inconvenience. It should also be the apparatus of choice for the smaller institutions which, because of limited resources, are unable to acquire one of the more elaborate fracture and orthopedic tables, such as the Hawley or the Albee table.

This outfit combines in a comparatively small and portable form all the necessary and mechanical principles of the several types of supports now in use and will facilitate application of all forms of jackets, spicas, and other dressings required in general and orthopedic surgery.

The primary mechanical principles of this apparatus are essentially a horizontal base rod, a vertical head post, and a vertical pelvic post, clamped to the base rod; one or more vertical posts, placed beyond the pelvic post, or between the pelvic post and head post, and clamped to the base rod; one or more lateral rods clamped to any vertical post below and at right angles to the base rod, to form a lateral base; and suitable fittings for all the vertical posts, to support the springs, rods, or webbing bands on which the body rests. As this apparatus is intended to be used on a table or in a bed, any form of support other than the lateral rods under the base rod is unnecessary, but may be used. Additional support or traction for any part of the body is obtained by extending a rod or rods from a clamp on the base rod and attaching to this second rod the supporting fixture, or the bandage, or strap for traction. All rods or posts, not essential members of support, may be clamped lightly at a point of extension and, when so clamped, may be axially turned in either direction and locked at any point by means of a clamp, giving a powerful windlass action in all planes parallel or tangent to the base rod. Variations of this form are almost unlimited.

When the apparatus is to be used in the hospital only, it is, of course, not necessary to dismount it into the many parts shown in Figure 3.

The whole apparatus, when dismounted, goes into a case, the size of which is 26½ by 10½ by 3½ inches. The weight complete is 45 pounds.

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### Self-Rectifying X-Ray Tube

Manufacturers of x-ray apparatus are now devoting considerable attention to self-rectifying x-ray tubes. A self-rectifying tube is one that rectifies the high-tension alternating current and, at the same time, generates x-ray.

Messrs. Green & Bauer of Hartford, Conn., and Chicago, have put such a tube on the market under the name of the "Renifar" self-rectifying x-ray tube, which warranted the manufacture of special closed-core transformers to operate it.

A transformer depending upon the "Renifar" self-rectifying x-ray tube to rectify the high tension alternating current, possesses many attractive features not found in other instruments for the generation of x-ray. Some of the many advantages are: (1) the short time and low milliampere seconds in which radiographs can be taken satisfactorily; (2) the reduction in capacity, bulk, and price of transformer; (3) the elimination of noise while operating; (4) the elimination of expensive and special wiring to make connections; (5) the elimination of moving parts; (6) the long life of the tube; (7) the elimination of interrupter when the tube is used from an induction coil on the alternating current; (8) great penetration.

Transformers operated in connection with this tube require from 10 to 12 milliamperes for a radiograph of any part of the body. The manufacturers state that, with such a tube backing up a spark of 6 inches and drawing 10 to 12 milliamperes, a hip of a 160-pound patient can be taken in 50 milliampere seconds, and a lumbar spine in 60 milliampere seconds. For fluoroscopic examination, only a few milliamperes are required to obtain an excellent definition.

The control of the vacuum is simple, and any resistance and milliampere reading can be obtained by manipulating the rheostat.

When the "Renifar" self-rectifying x-ray tube is used in connection with an induction coil on the alternating current, no interrupter is needed. The alternating current from the line is connected directly to the primary of the coil. The manufacturers claim that the tube will suppress the inverse current and the coil will be found to work 50 per cent faster. To prove their contention, tests have been made with an 8-inch induction coil that would not take the hip or lumbar spine, no matter how long the exposure. When using this self-rectifying tube, satisfactory radiographs of these respective parts were obtained within a reasonable time.

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### The McKenna Fracture and Orthopedic Table

A fracture table designed for all classes of orthopedic work and provided with the means for making fluoroscopic examinations during extension has recently been placed upon the market at the suggestion of Dr. H. H. McKenna, of Chicago.

The table, constructed on a segment or unit principle, permits of the independent adjustment of the various segments.

The lowering of a segment or of segments out of the way of the surgeon leaves the patient suspended over the open space, thus effectually eliminating the strain to which a patient is subject when suspension is secured by means of elevation.

Great rigidity of the working parts of the table is combined with smooth, easy adjustment of these parts. The segments composing the table top are raised and lowered by means of a spoked handwheel and steel shaft, working in conjunction with worm gear and ratchet bars. A turn of the wheel elevates or lowers the segment as may be desired. Segments composing the body of the table and segments composing the leg section and arm section are supported by the ratchet bars in a manner which insures rigidity under great strain.

The table is distinctive in construction and in the method of adjusting the segments when it is used for operative work on the lower limbs. These segments for operative work on the lower limbs, two in number, work independently of each other. They can be swung out at an angle from the body of the table, thus permitting the operator to work in between the patient's limbs with perfect freedom. These segments supporting the lower limbs are constructed so as to permit of their being locked at any angle to each other and to the body of the table that the operator may find convenient in his work. The table is equipped with perineal posts and with adjustable traction attachments for securing traction on both the upper and lower limbs.

The table frame is made of steel tubing, finished in white enamel and mounted on rubber-tired castors; the castors are fitted with brake for locking and holding the table in one place when necessary. The table top is composed of segments made of angle steel and covered with sheet zinc, the zinc being brought down, around, and over the steel frames of the segments, making the table top easy to clean and keep clean.

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### BOOKS RECEIVED FOR REVIEW

**The Blind:** Their Condition and the Work Being Done for Them in the United States. By Harry Best, Ph.D. Cloth, pp. 763, $4. Macmillan Company, New York, 1919.

**Rules for Recovery from Tuberculosis.** A Layman's Handbook of Treatment. By Lawrason Brown, M.D. Third edition, thoroughly revised. Cloth, pp. 192, $1.50. Lea & Febiger, Philadelphia.

**Hygiene and Public Health.** By George M. Price, M.D., director joint board of sanitary control; author of Handbook on Sanitation, Tenement-House Inspection; Hygiene and Sanitation for Nurses; The Modern Factory. Second edition, thoroughly revised. Cloth, pp. 280, $1.50. Lea & Febiger, Philadelphia.

**Principles of Nursing.** By Charlotte A. Brown, R.N., superintendent of nurses in the New England Hospital for Women and Children; late instructor in the Boston City Hospital and Boston Lying-in Hospital Training School for Nurses. The Nurses Textbook Series. Cloth, pp. 257, with illustrations and glossary, $1.75. Lea & Febiger, Philadelphia.

**Roentgen Interpretation.** A Manual for Students and Practitioners. By George W. Holmes, M.D., roentgenologist to the Massachusetts General Hospital and instructor in roentgenology, Harvard Medical School; and Howard E. Ruggles, M.D., roentgenologist to the University of California Hospital and clinical professor of roentgenology University of California Medical School. Cloth, pp. 205, with 181 engravings, $2.75. Lea & Febiger, Philadelphia.

**Urology.** A Textbook of Urology in Men, Women, and Children, including Urinary and Sexual Infections, Urethroscopy, and Cystoscopy. By Victor Cox Pedersen, A.M., M.D., F.A.C.S.; major, Medical Corps, U. S. Army; consulting physician to the selective service headquarters in the city of New York; member of the American Urological Association, American Medical Association, etc. Cloth, pp. 991, with 362 engravings (of which 152 are original), and 13 colored plates, $7.00. Lea & Febiger, Philadelphia.

**Pulmonary Tuberculosis.** By Maurice Fishberg, M.D., clinical professor of medicine, New York University and Bellevue Hospital Medical College; attending physician, Montefiore Home and Hospital for Chronic Diseases, New York. Second edition, revised and enlarged. Illustrated with 100 engravings and 25 plates, pp. 744, $6.50. Lea & Febiger, Philadelphia.

**Materia Medica for Nurses, A Textbook of.** By A. L. Muirhead, M.D., Professor of Pharmacology, Creighton Medical College, Omaha, Neb. Cloth, pp. 183, illustrated, $1.50. C. V. Mosby Company, St. Louis, 1919.

**The Higher Aspect of Nursing.** By Gertrude Harding. Cloth, pp. 310, $2 net. W. B. Saunders Company, Philadelphia, and London, 1919.